

FIG. 1A

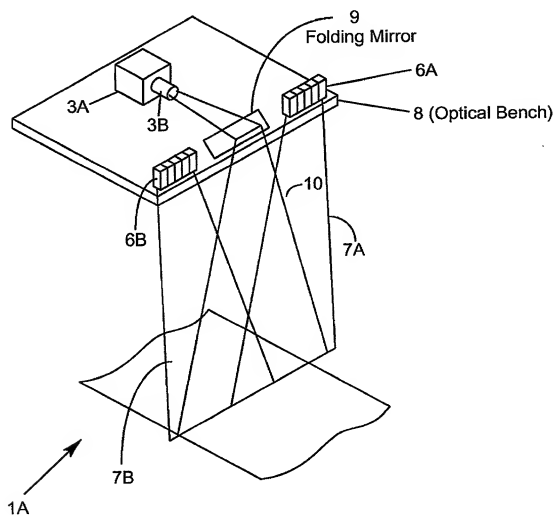


FIG. 1B1

- (1) Fixed Focal Length Camera Lens
(2) Fixed Focal Distance

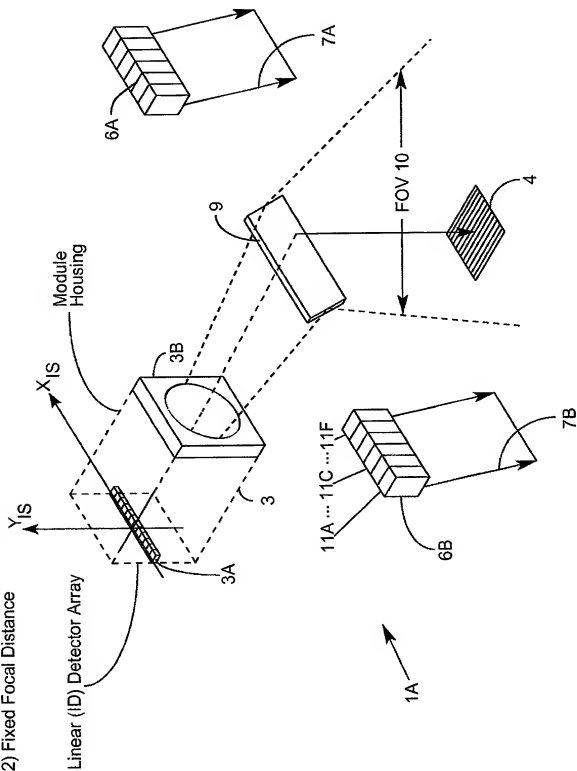


FIG. 1B2

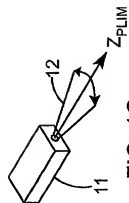


FIG. 1C

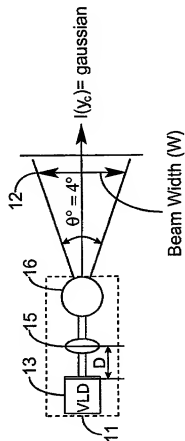


FIG. 1E1

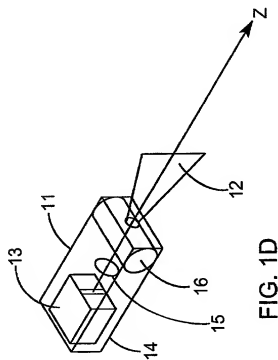


FIG. 1D

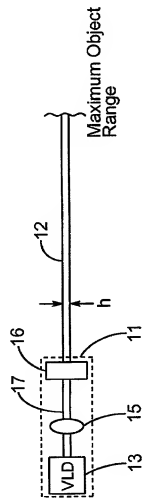


FIG. 1E2

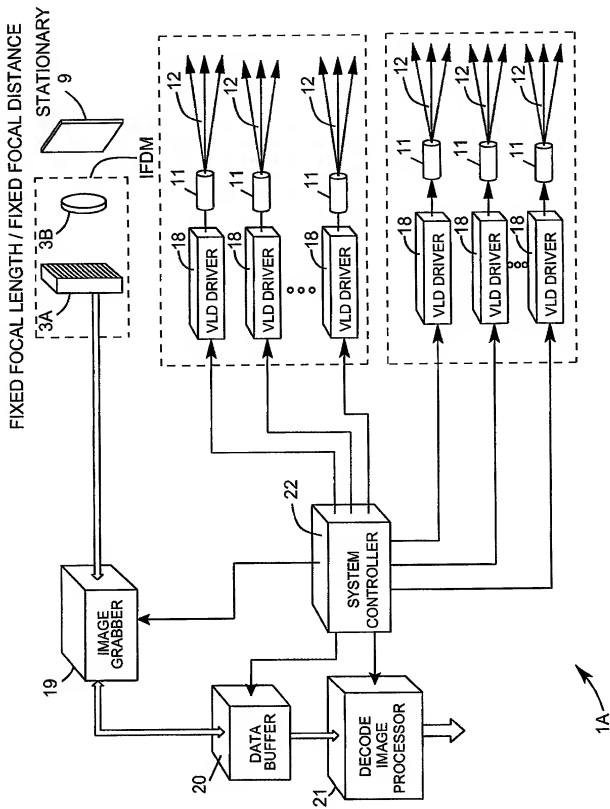


FIG. 1F

10659051.070902

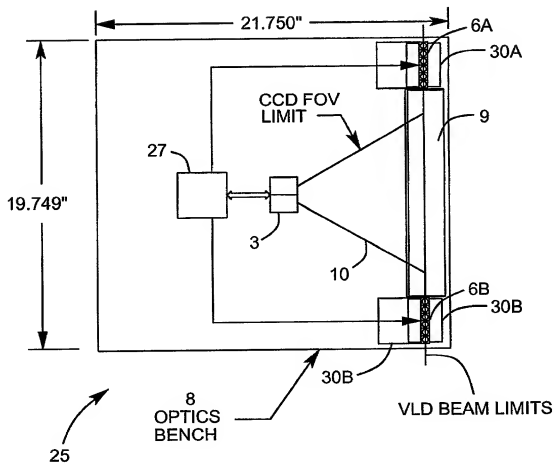


FIG. 1G2

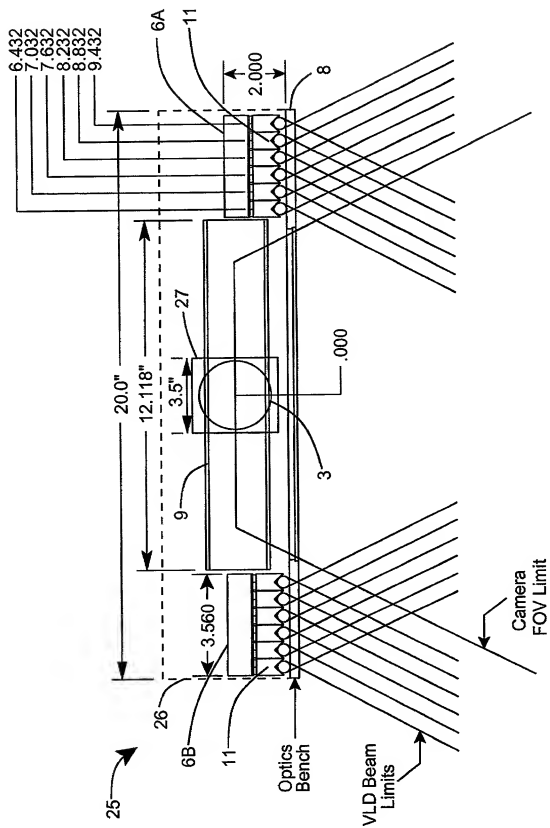


FIG. 1G3

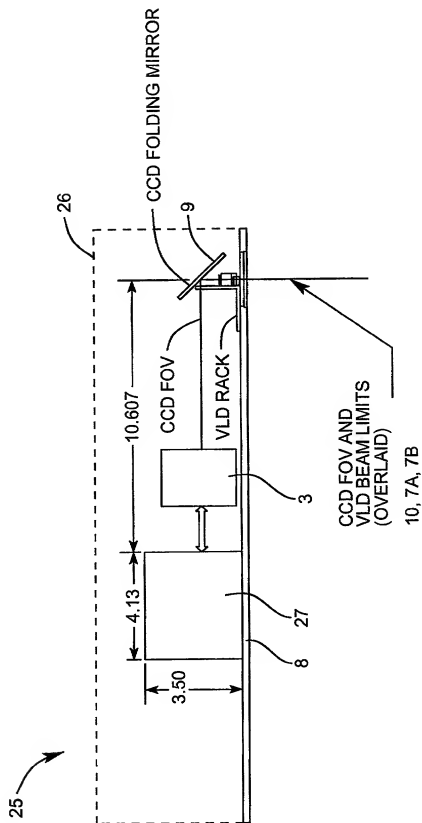


FIG. 1G4

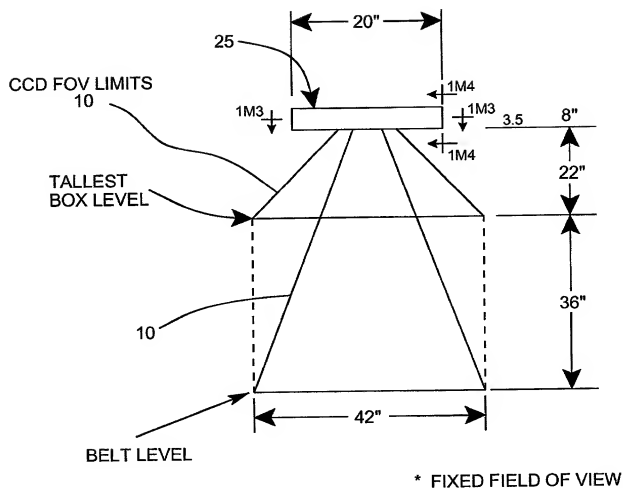


FIG. 1G5

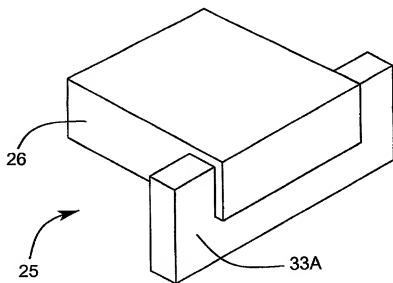


FIG. 1G6

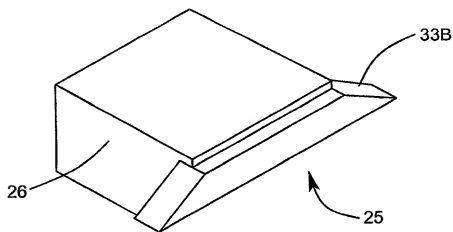
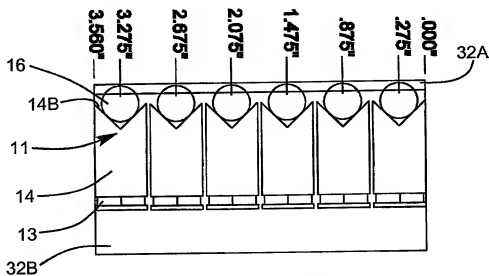
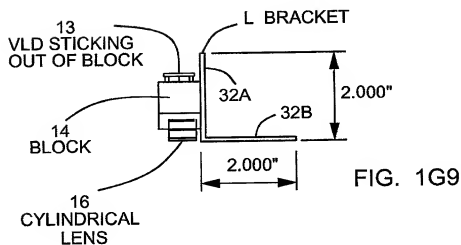
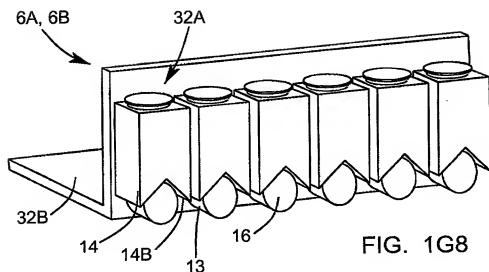


FIG. 1G7



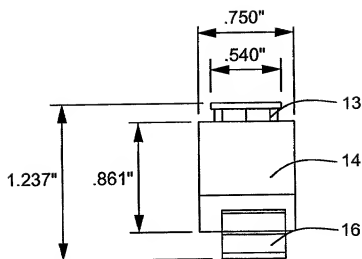


FIG. 1G11

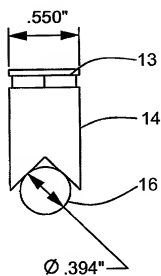


FIG. 1G12

R<0.5% (760-800nm)
over zone Ø4.3

50/5x0.063;G1x0.4;C1x1.6

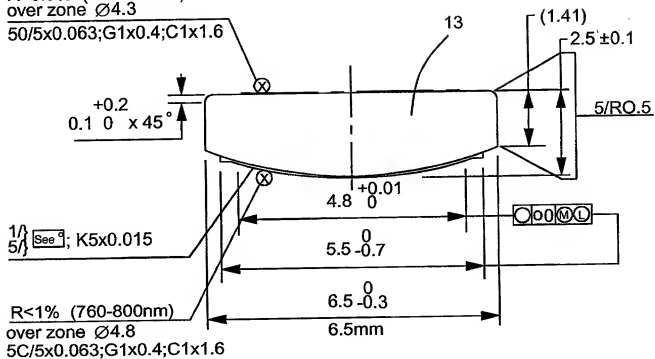


FIG. 1H1

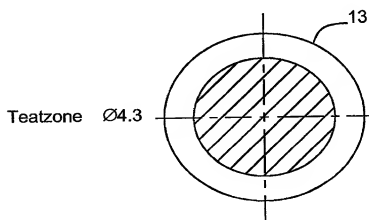


FIG. 1H2

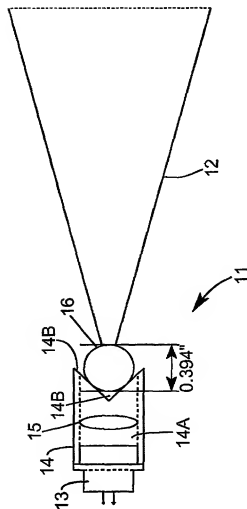


FIG. 11

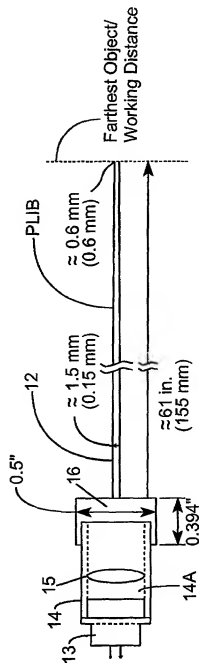


FIG. 11/2

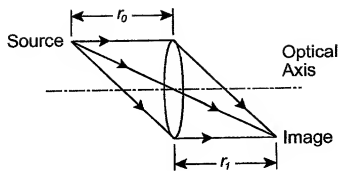


FIG. 1J1

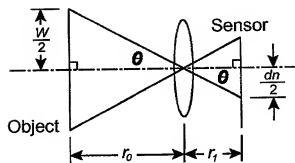


FIG. 1J2

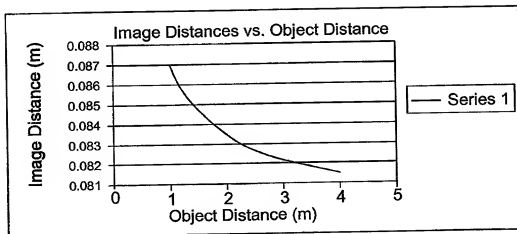


FIG. 1J3

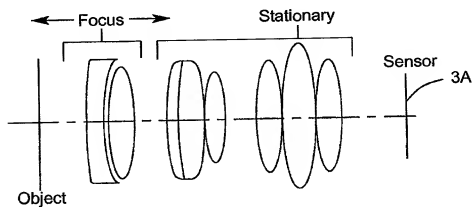


FIG. 1J4

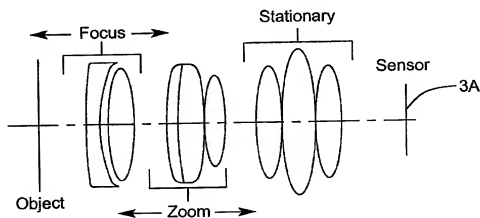


FIG. 1J5

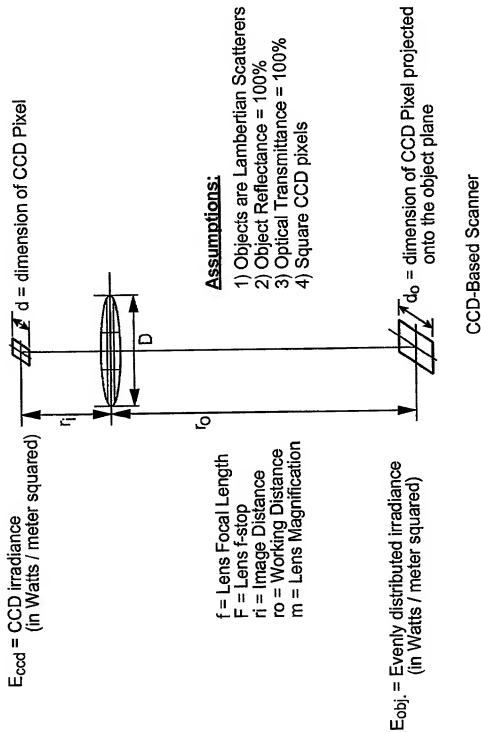


FIG. 1J6

Fixed Focal Length
Lens Cases

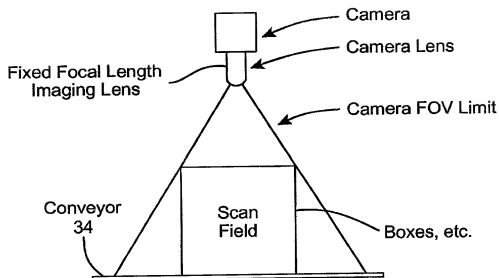


FIG. 1K1

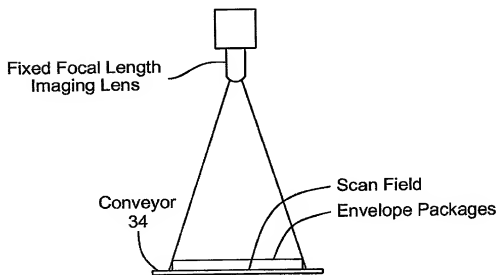


FIG. 1K2

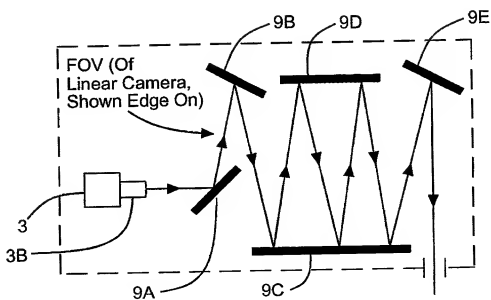


FIG. 1L1

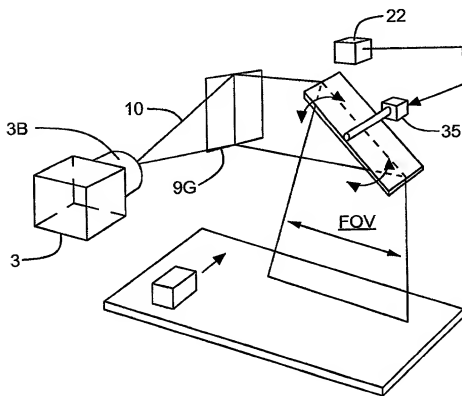


FIG. 1L2

Pixel Power Density vs. Object Distance (General Example)

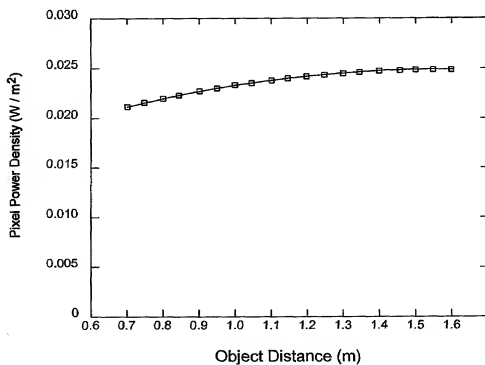


FIG. 1M1

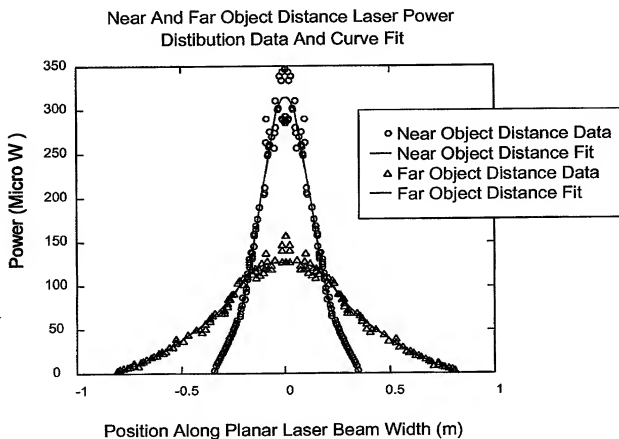


FIG. 1M2

Planar Laser Beam Width vs. Object Distance

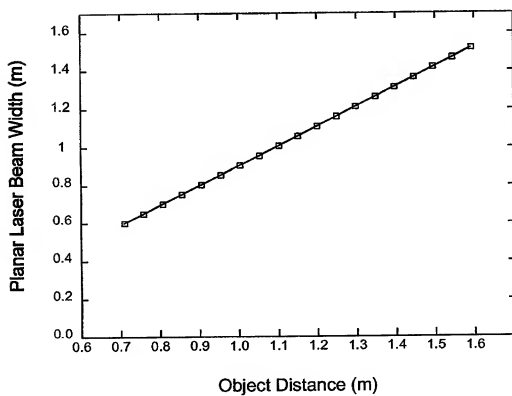


FIG. 1M3

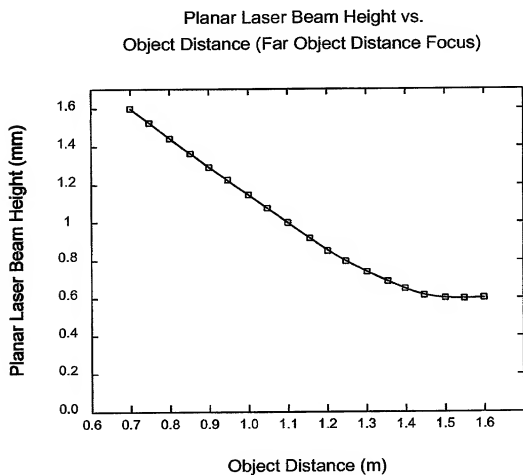


FIG. 1M4

Center Line Power Density vs. Object
Distance (Far Object Distance Focus)

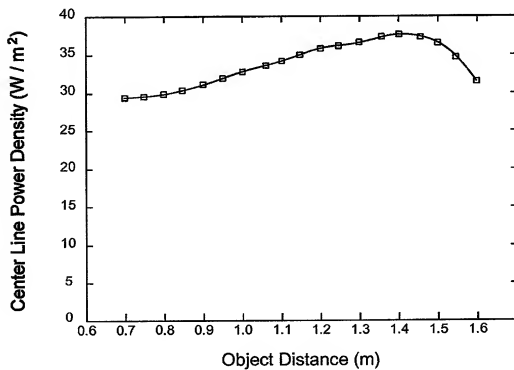


FIG. 1N

Pixel Power Densities vs. Object Distance

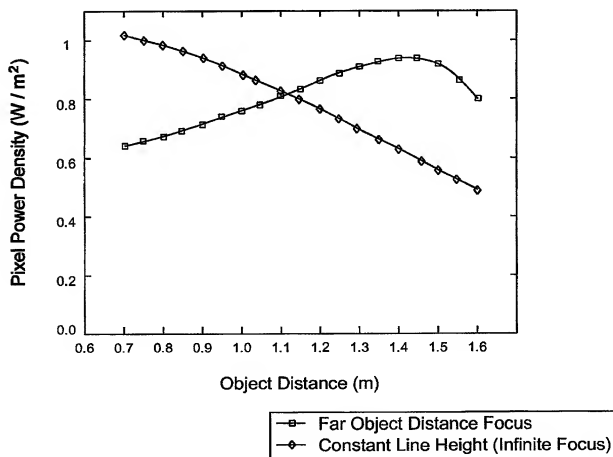


FIG. 10

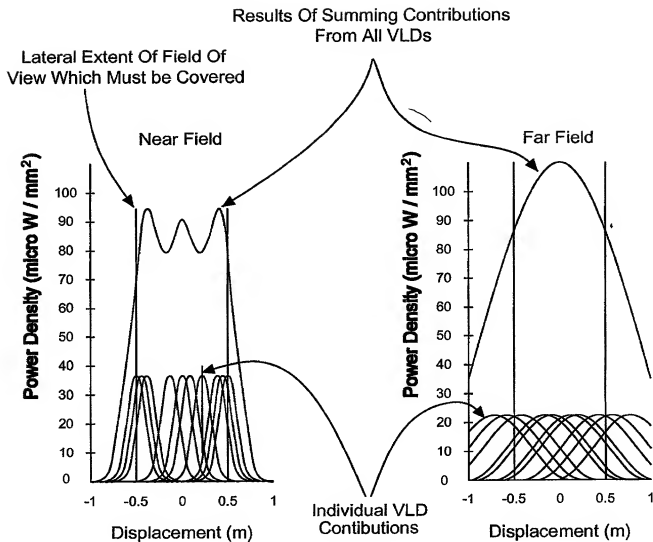


FIG. 1P1

FIG. 1P2

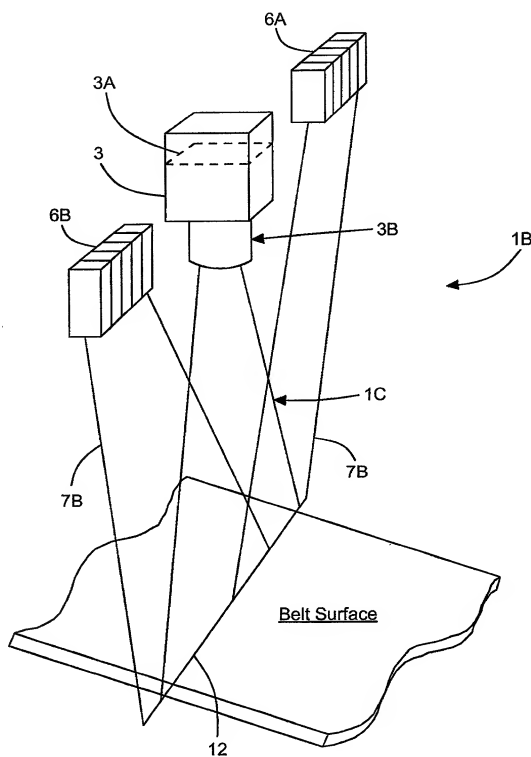


FIG. 1Q1

FIXED FOCAL LENGTH / FIXED FOCAL DISTANCE

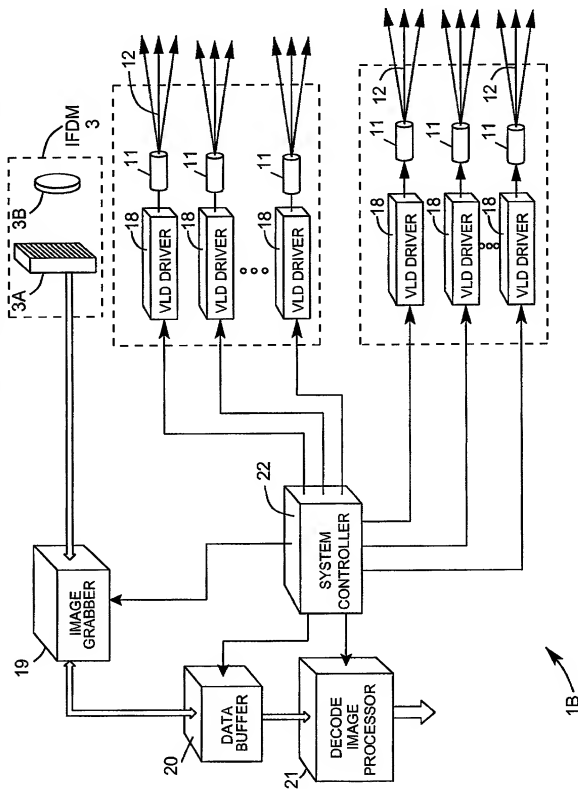


FIG. 1Q2

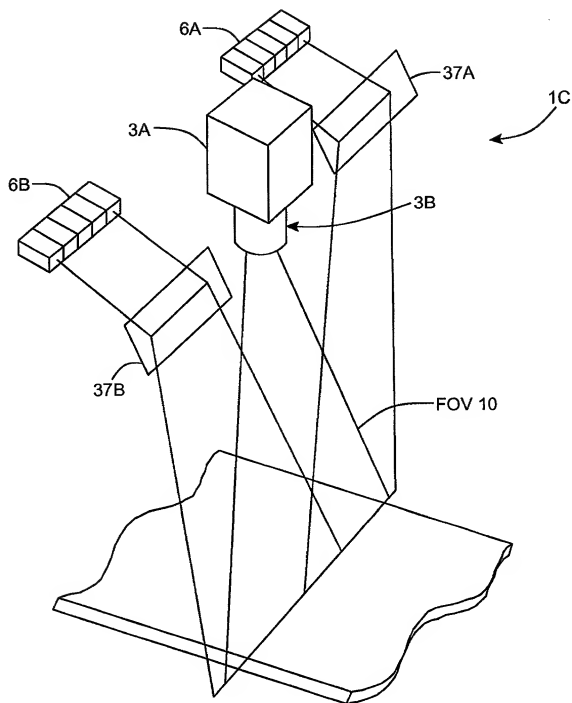


FIG. 1R1

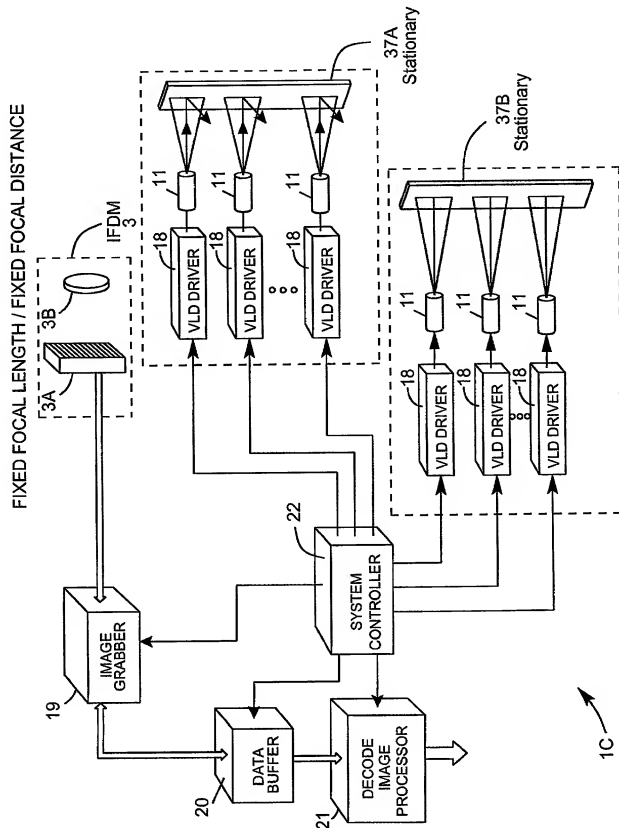


FIG. 1R2

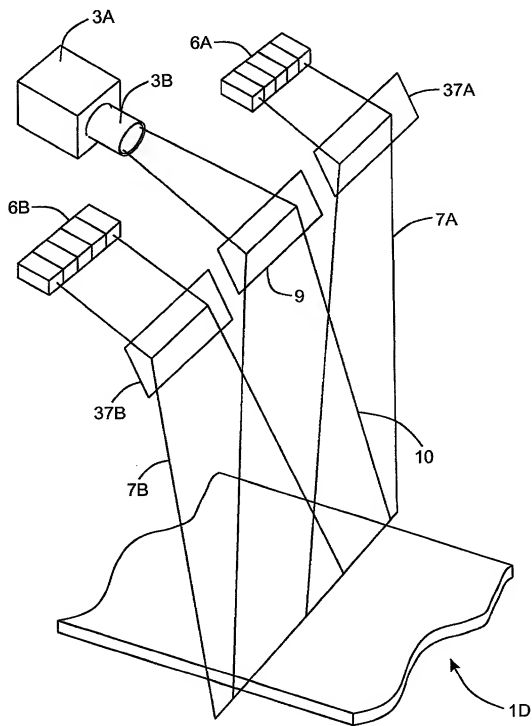


FIG. 1S1

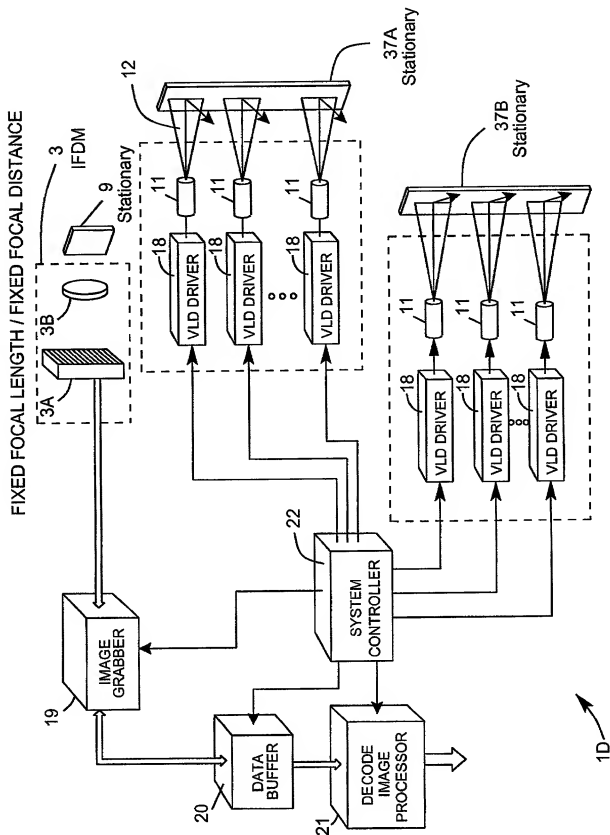


FIG. 1S2

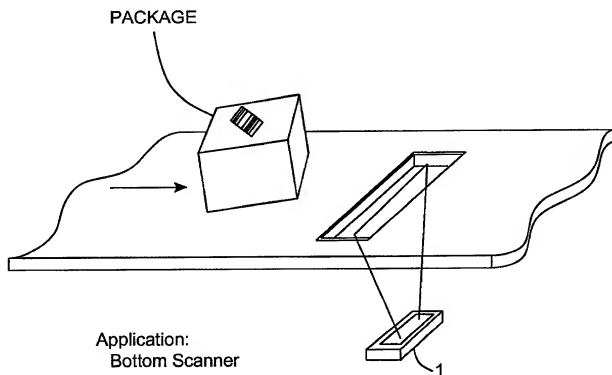


FIG. 1T

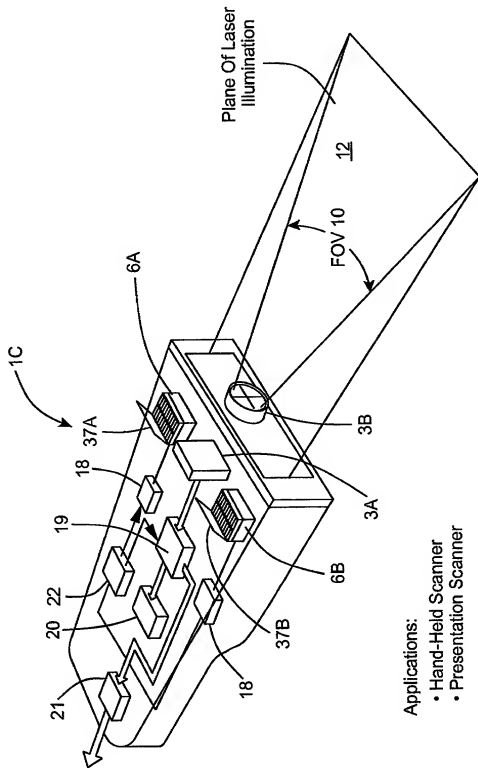
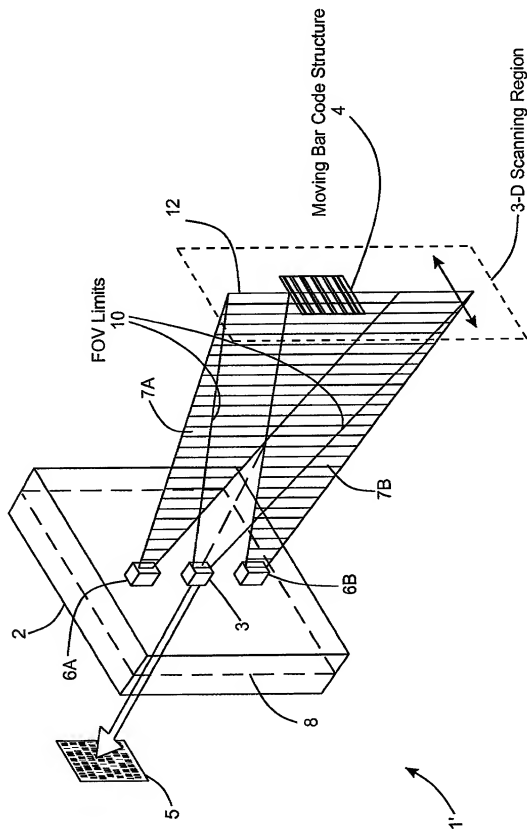


FIG. 1U



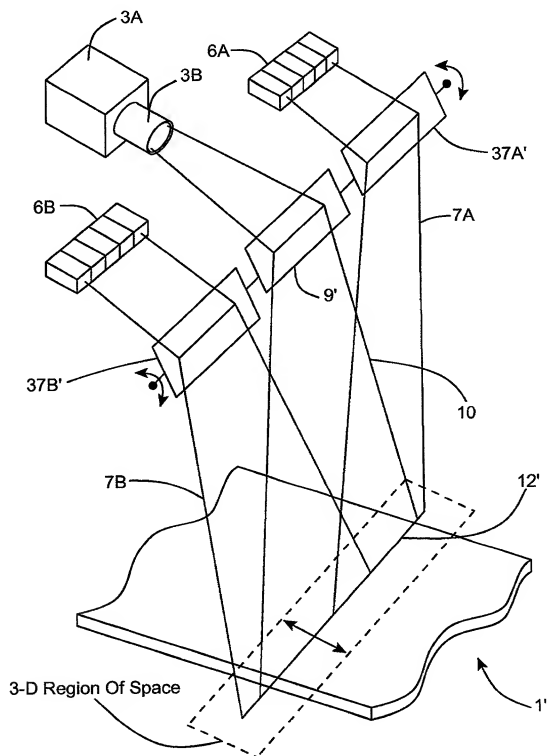
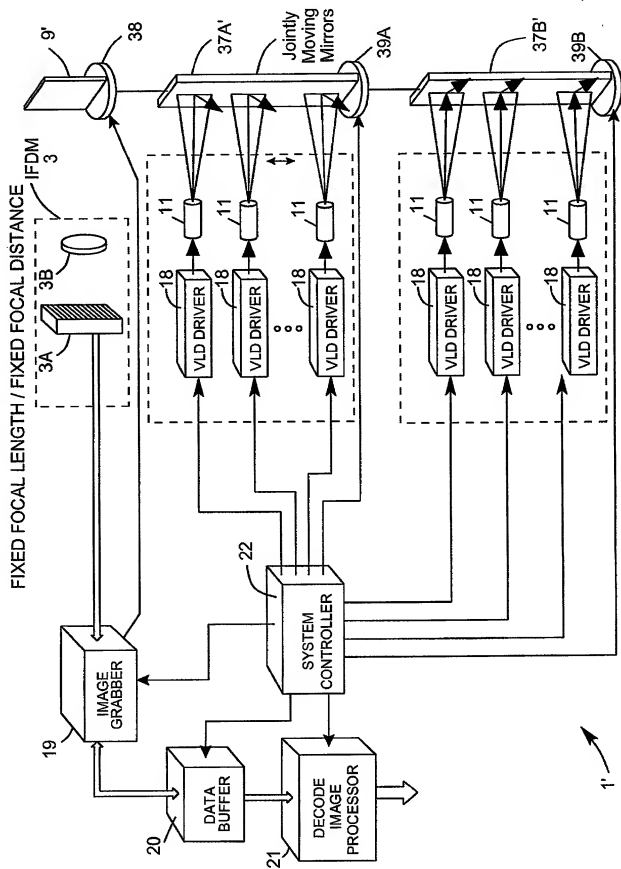


FIG. 1V2



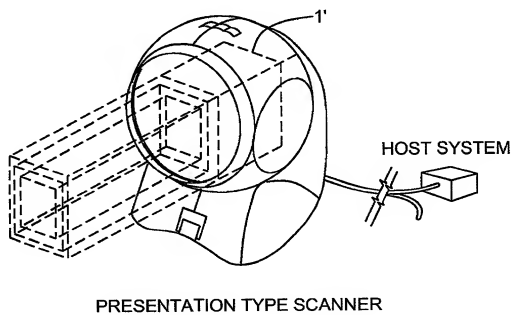


FIG. 1V5

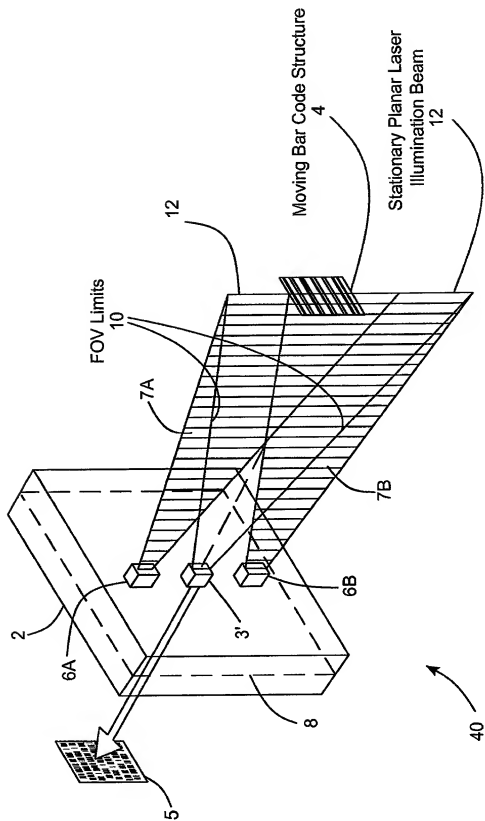


FIG. 2A

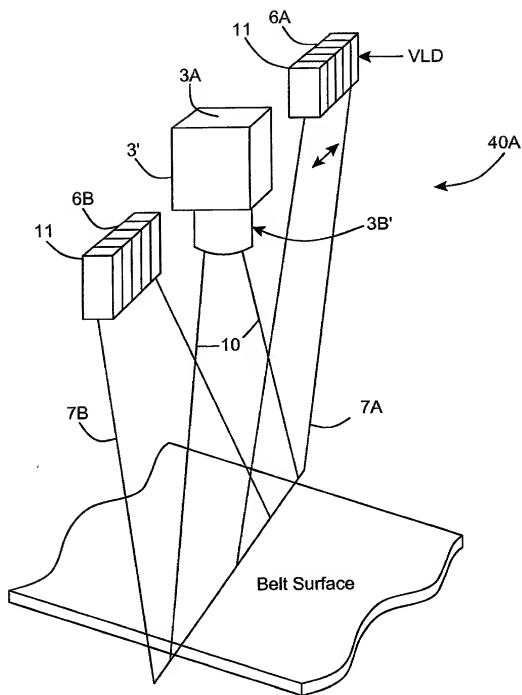
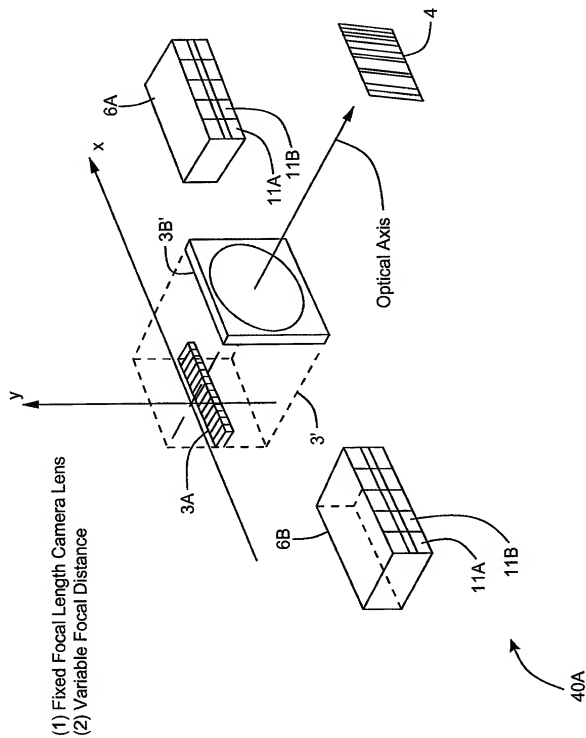


FIG. 2B1



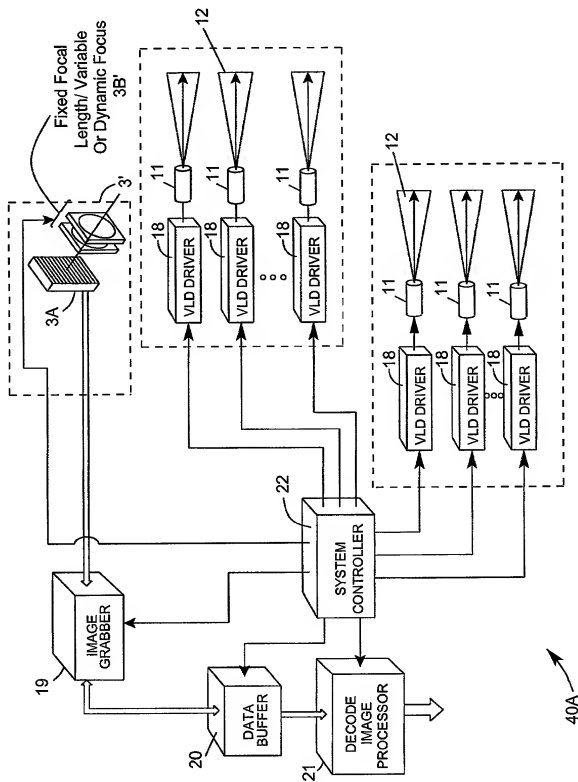


FIG. 2C1

- Fixed Focal Length Imaging Lens
- Variable Or Dynamic Focus Control

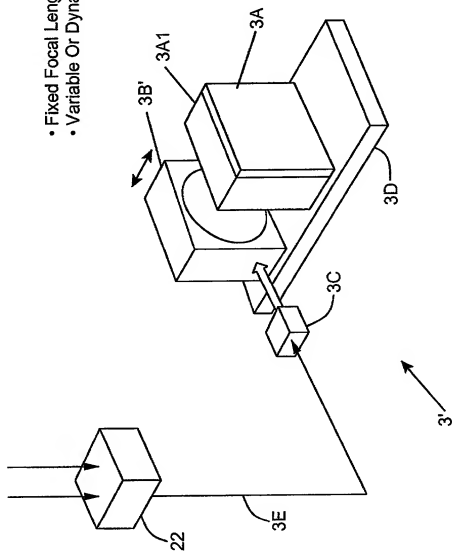


FIG. 2C2

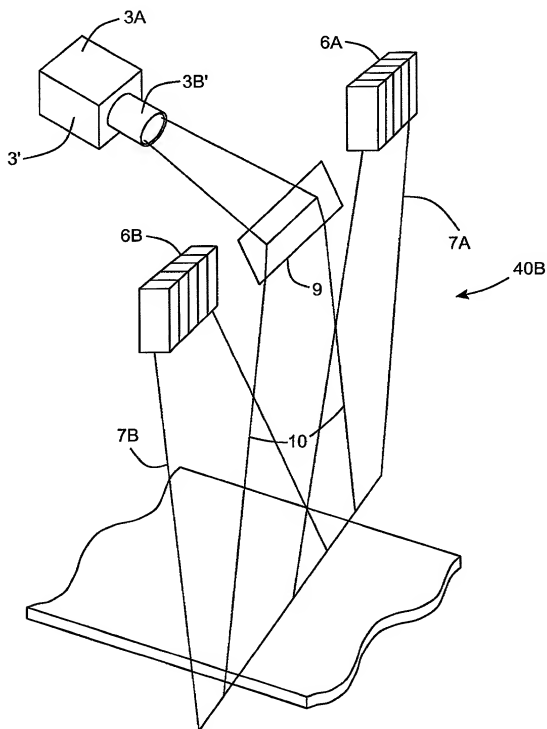


FIG. 2D1

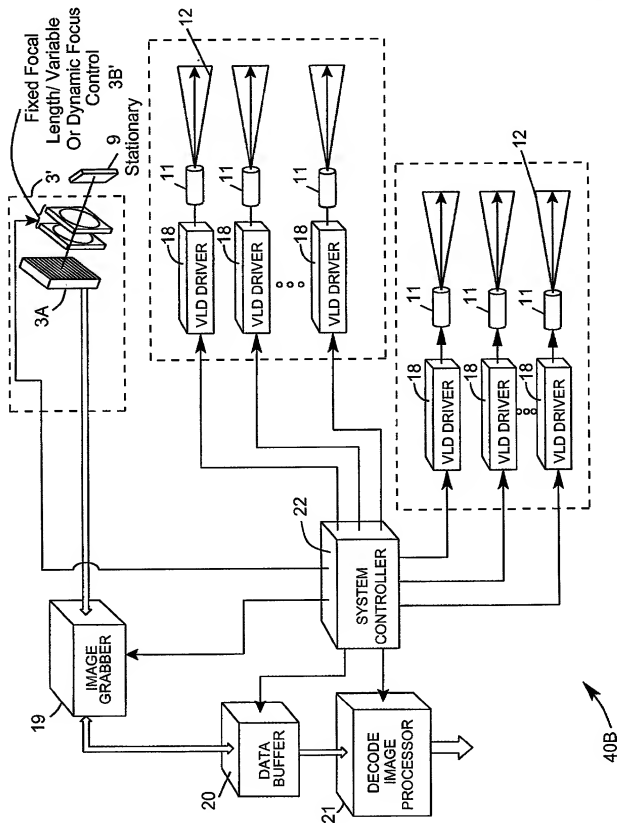


FIG. 2D2

- Fixed Focal Length Imaging Lens
- Variable Or Dynamic Focus Control

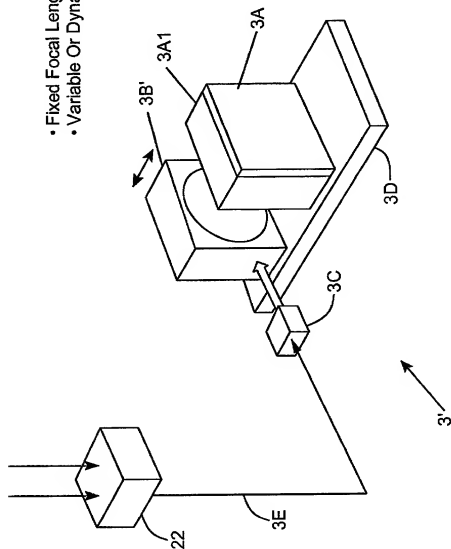


FIG. 2D3

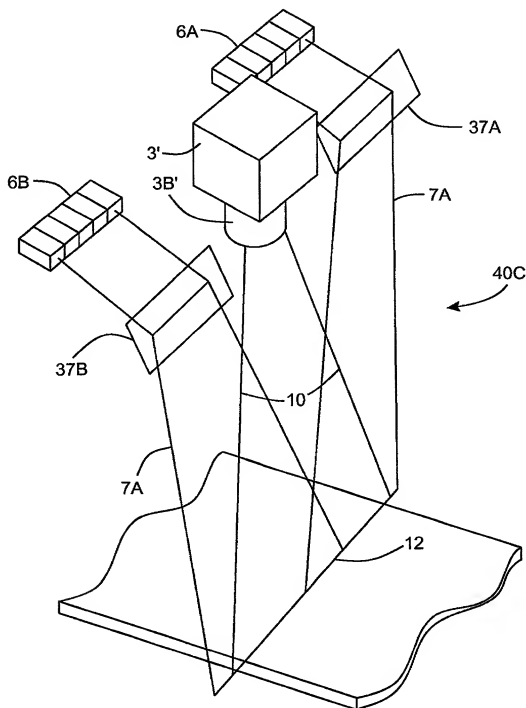


FIG. 2E1

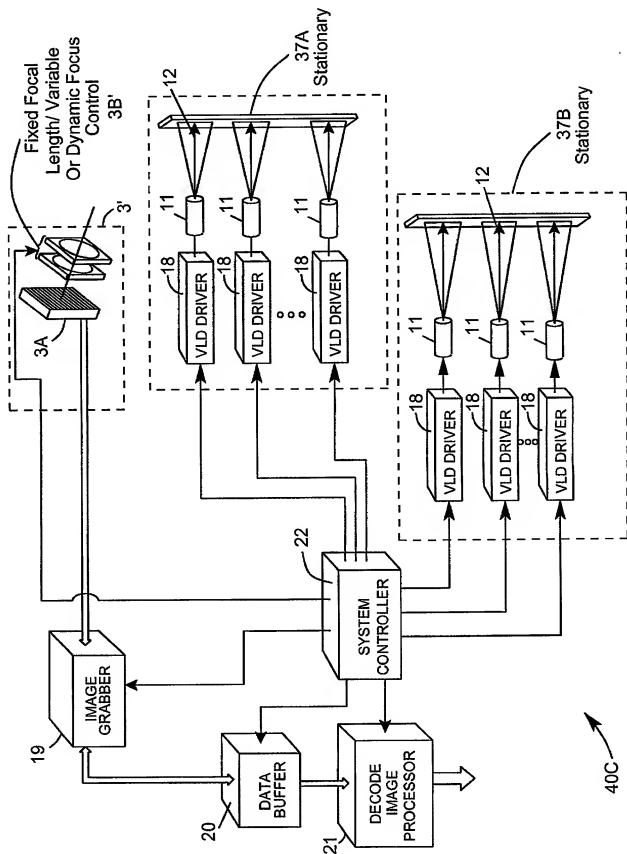


FIG. 2E2

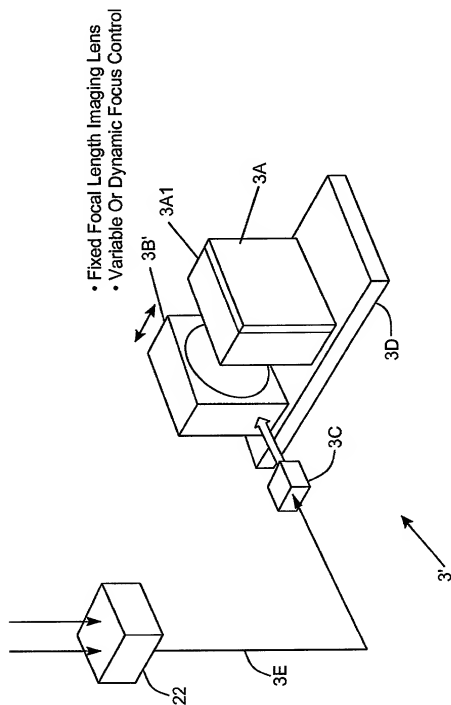


FIG. 2E3

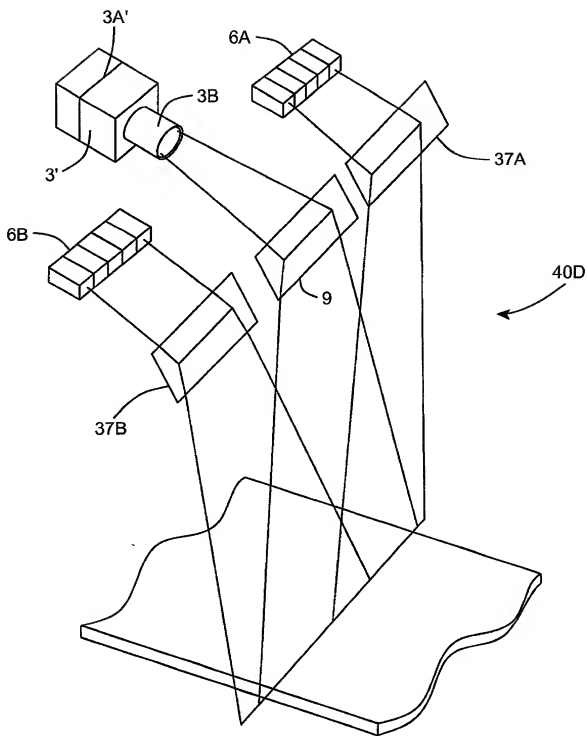


FIG. 2F1

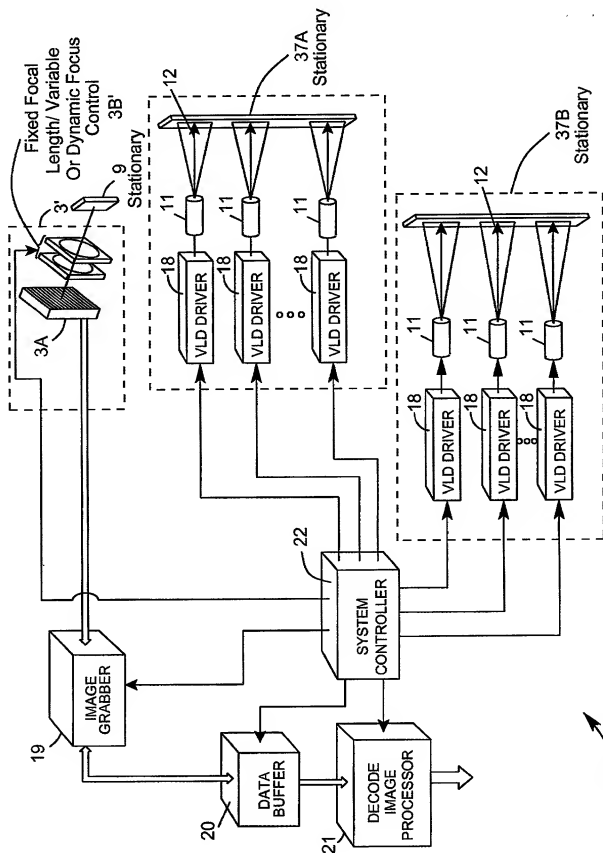


FIG. 2F2

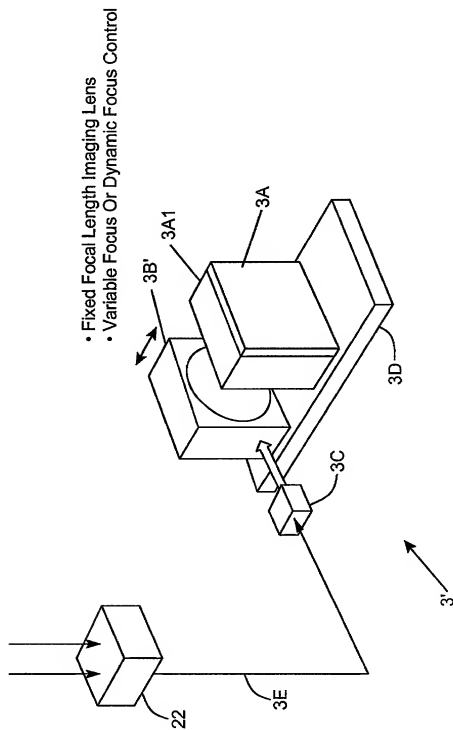


FIG. 2F3

Top Conveyor Scanner:

- Fixed Focal Length Imaging Lens
- Variable Focal Distance Control

Side Conveyor Scanner:

- Fixed Focal Length Imaging Lens
- Dynamic Focal Distance Control

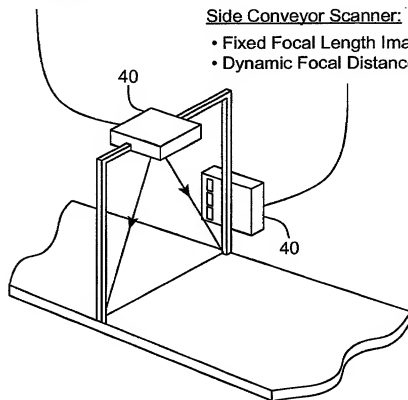


FIG. 2G

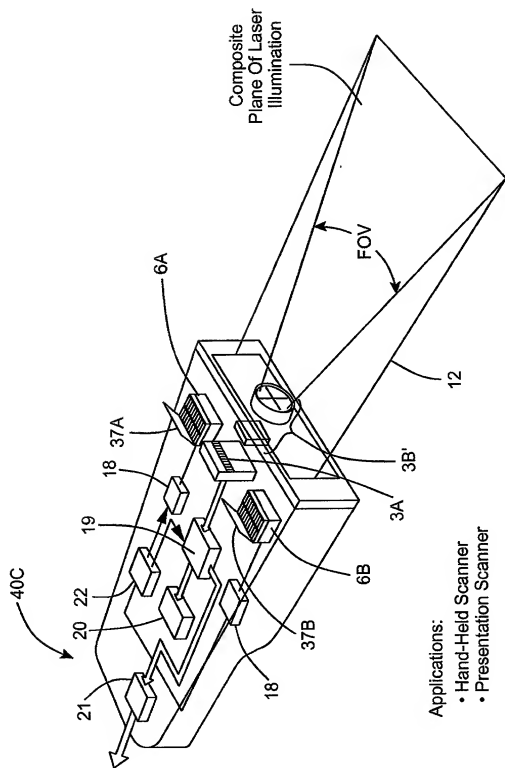


FIG. 2H

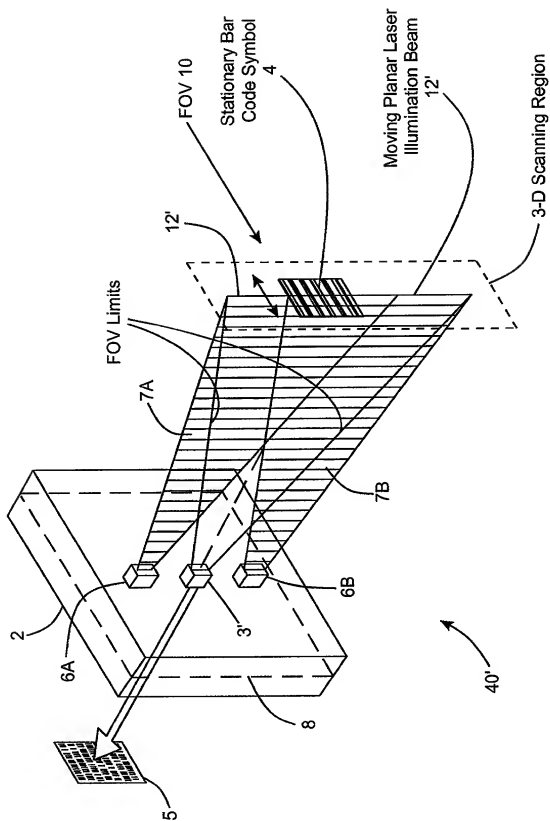


FIG. 211

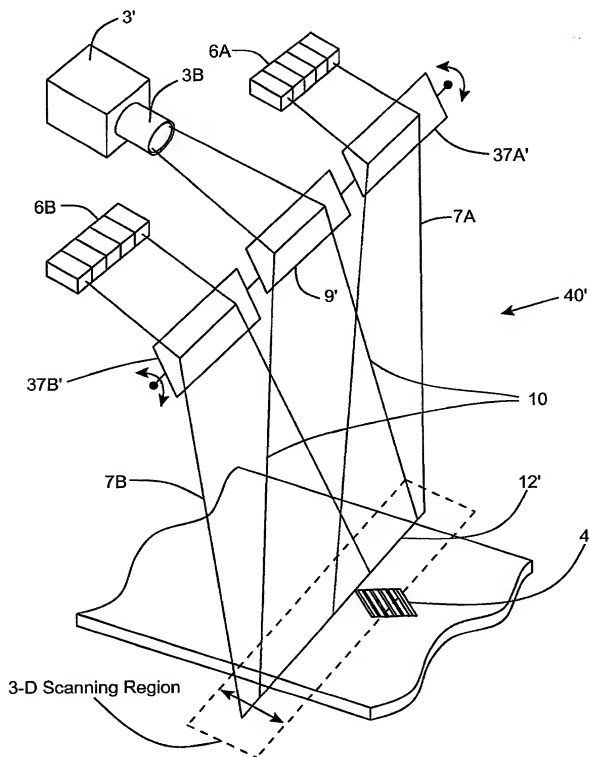


FIG. 212

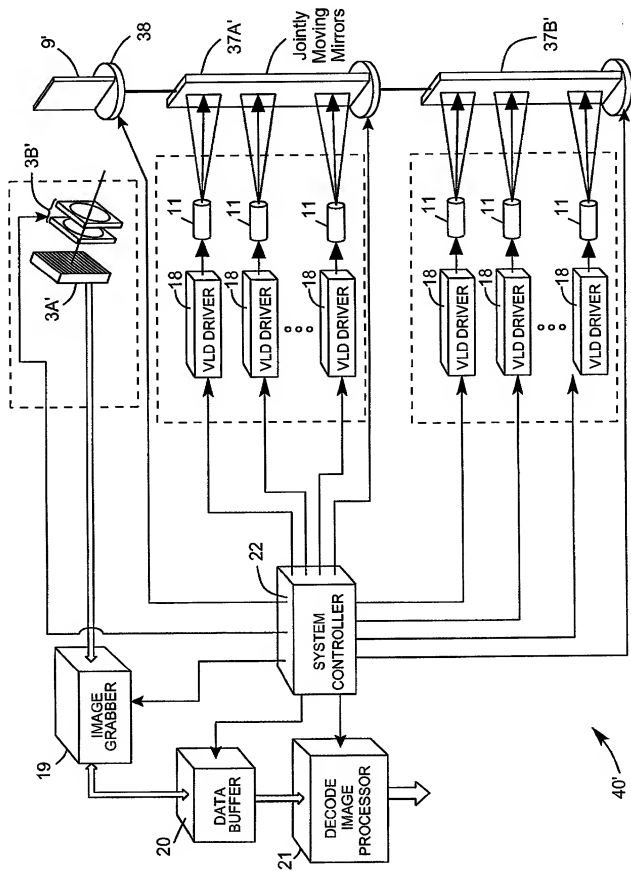


FIG. 213

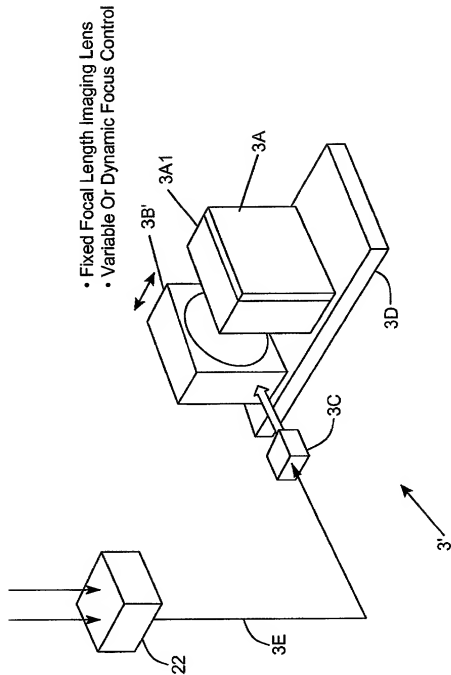


FIG. 214

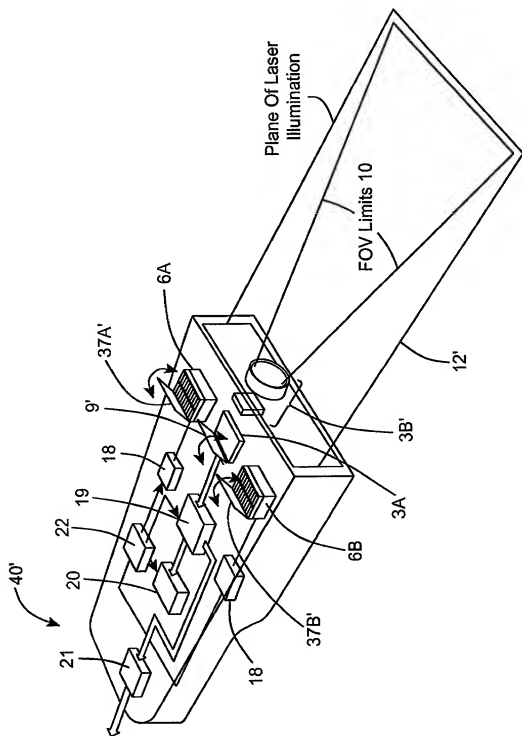


FIG. 2I5

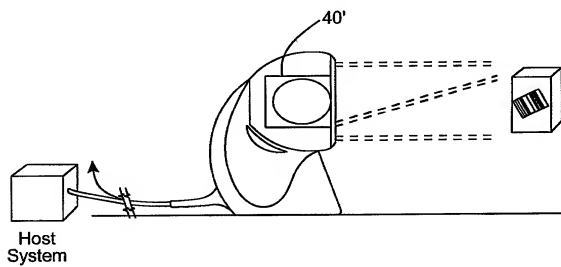


FIG. 216

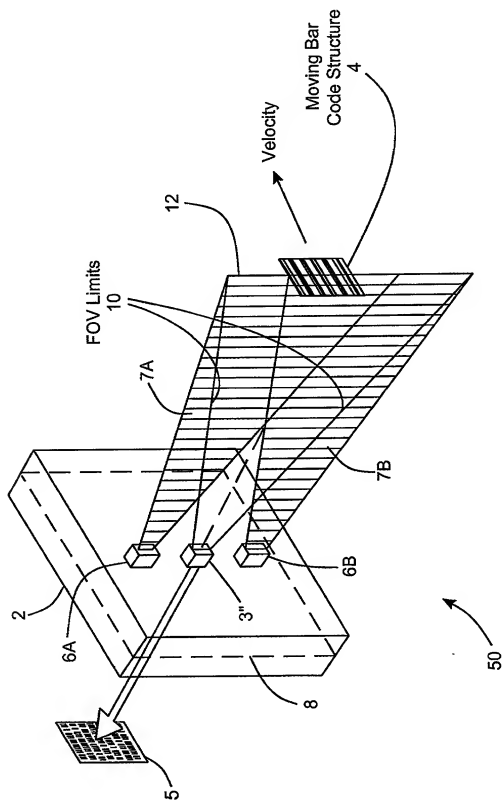


FIG. 3A

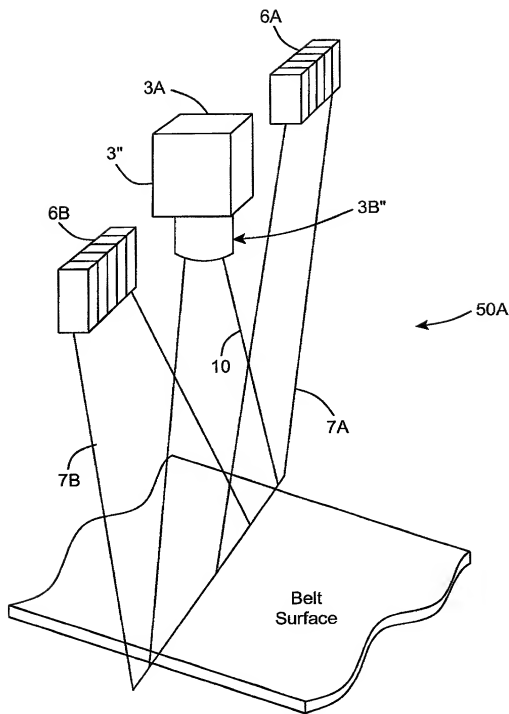


FIG. 3B1

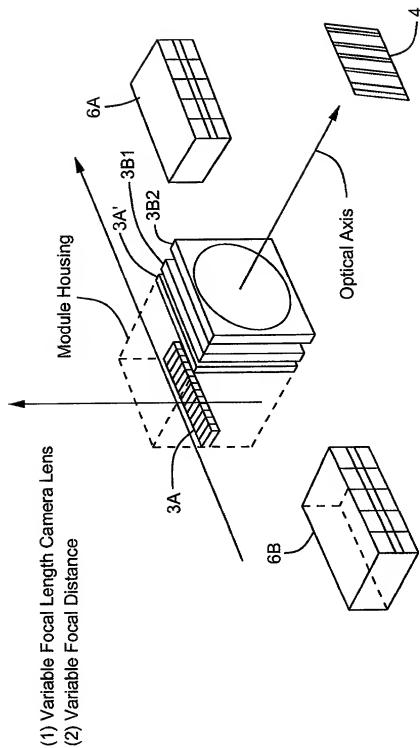


FIG. 3B2

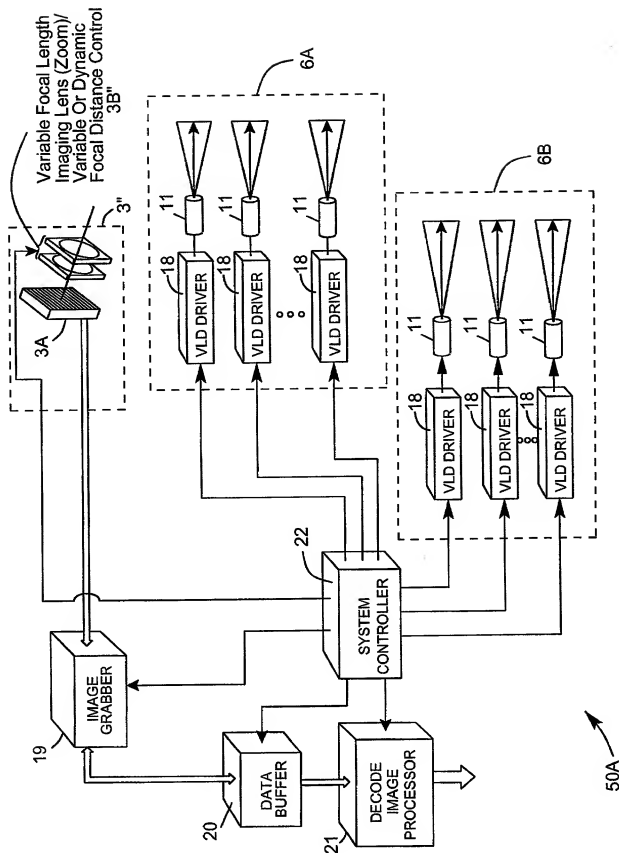
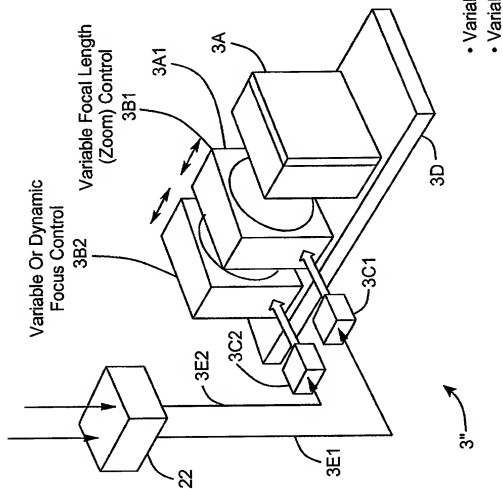


FIG. 3C1



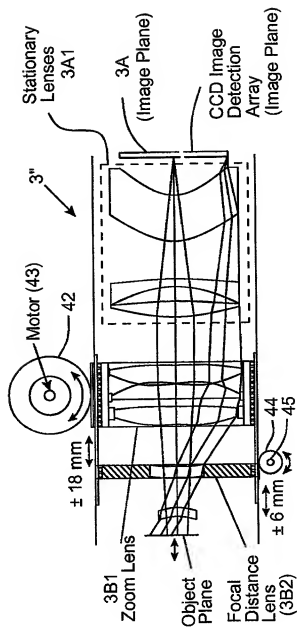


FIG. 3D

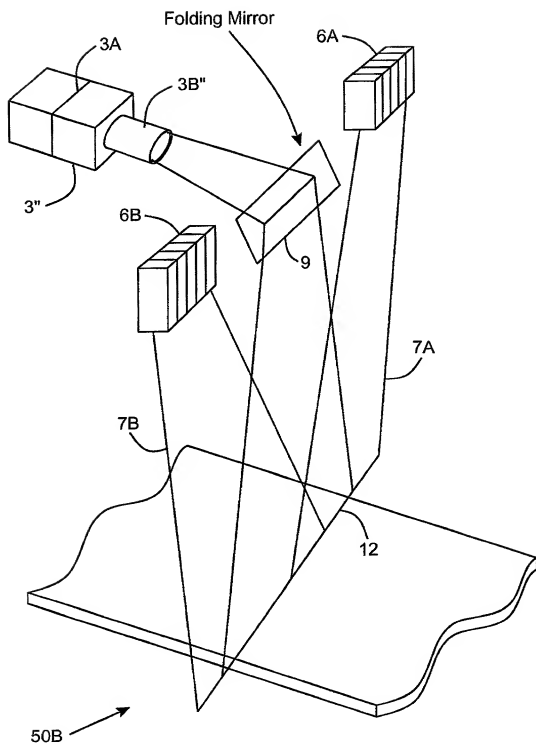


FIG. 3E1

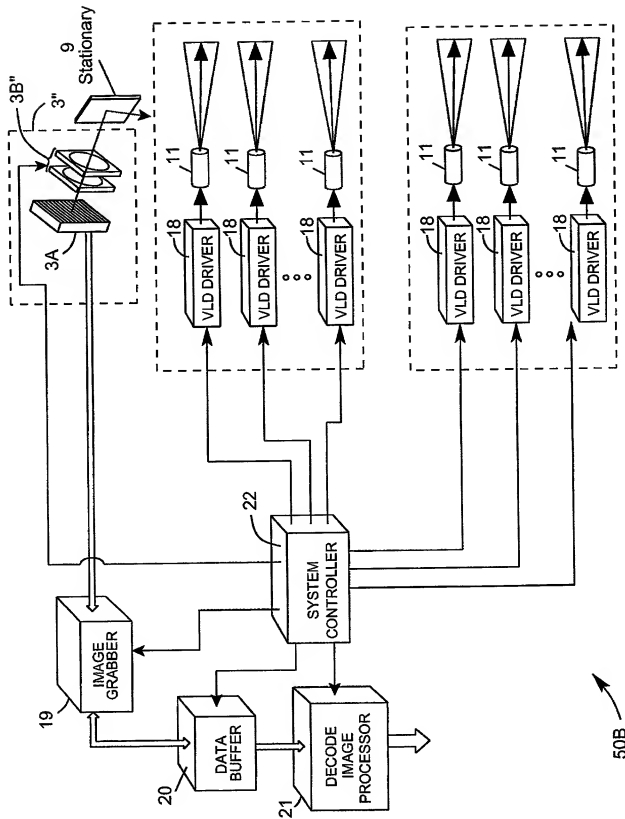


FIG. 3E2

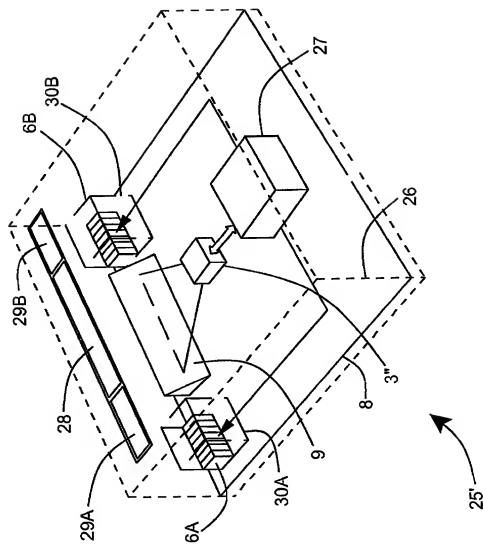


FIG. 3E4

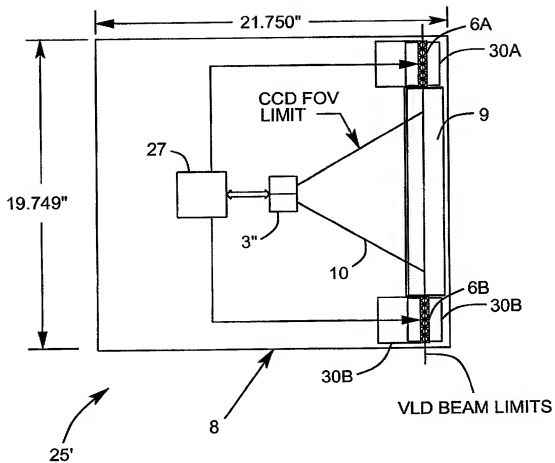


FIG. 3E5

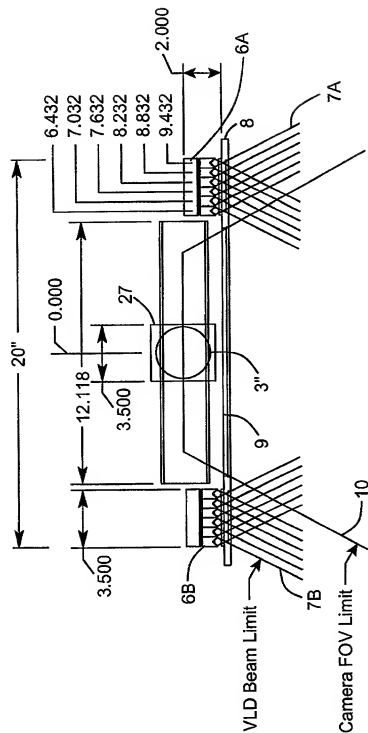


FIG. 3E6

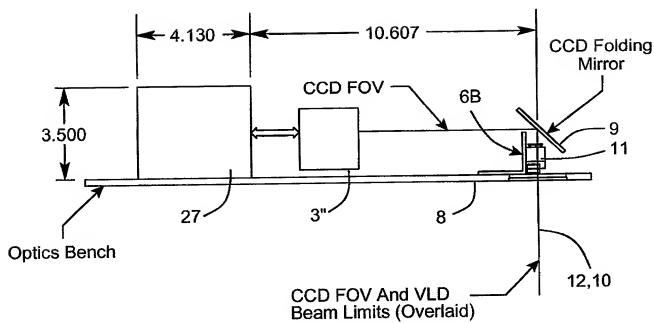


FIG. 3E7

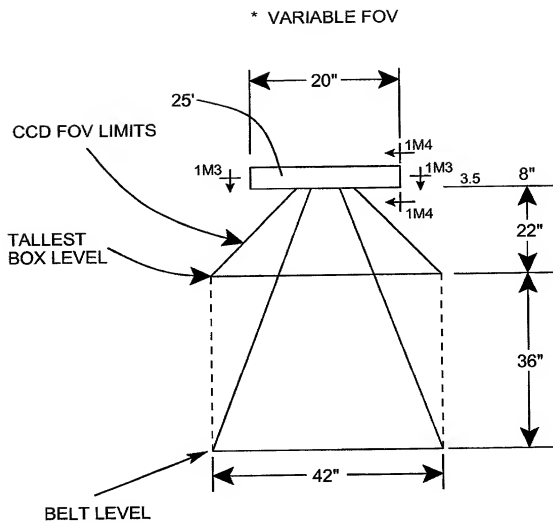


FIG. 3E8

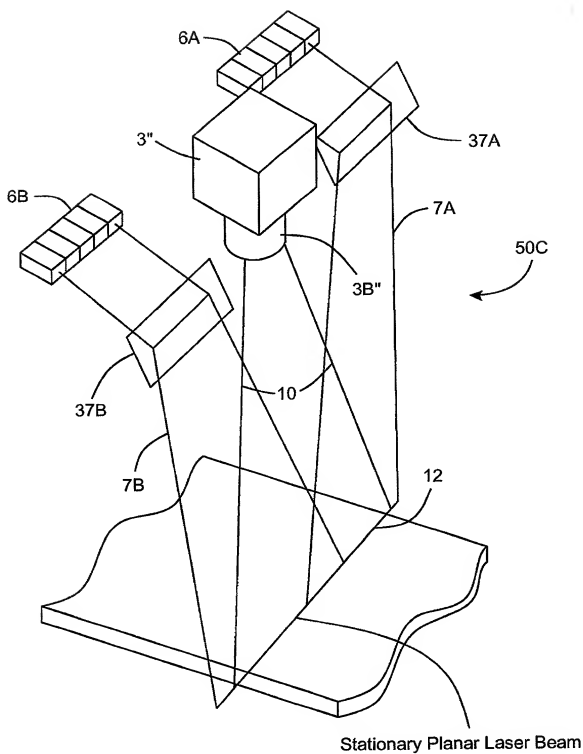


FIG. 3F1

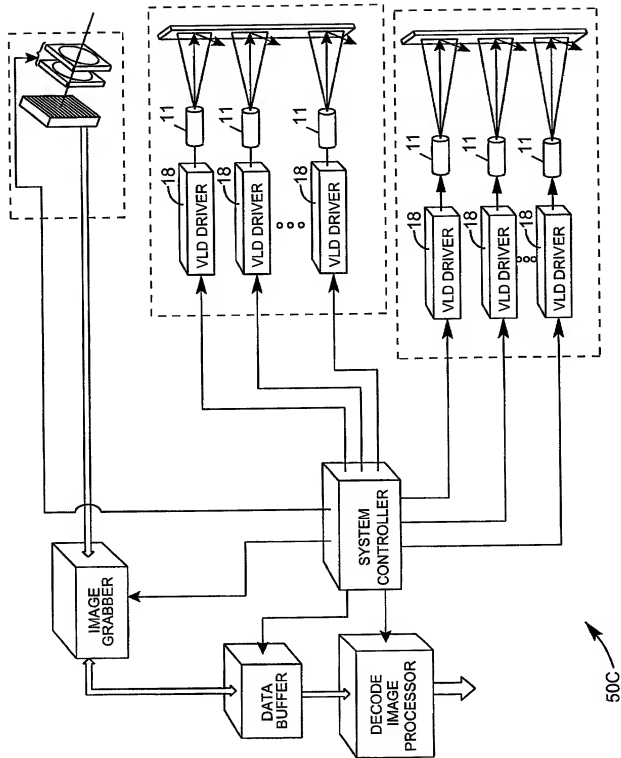


FIG. 3F2

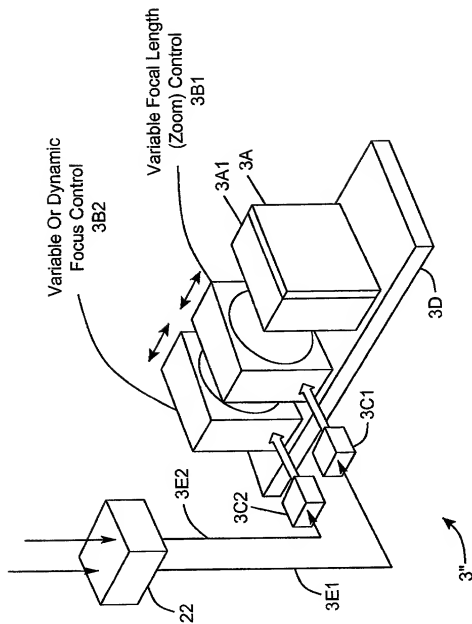


FIG. 3F3

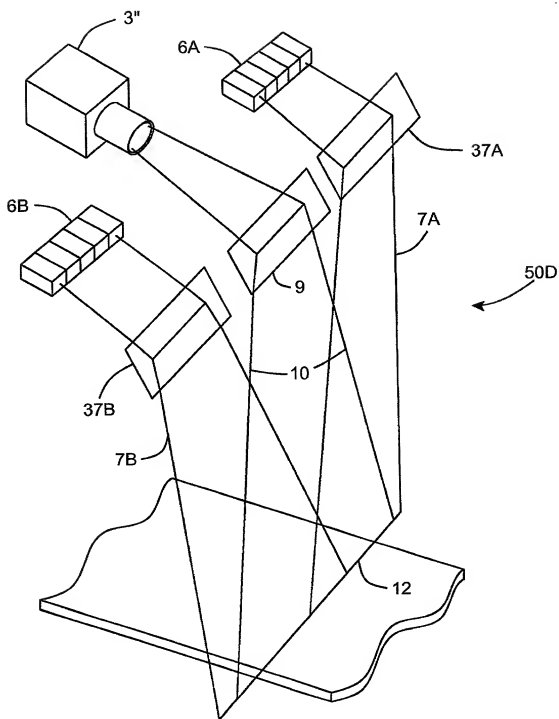


FIG. 3G1

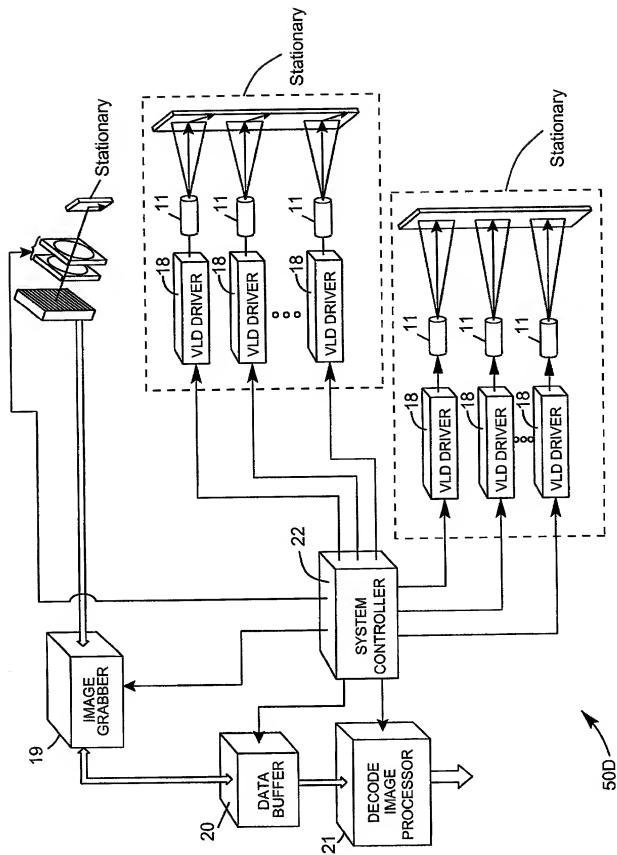


FIG. 3G2

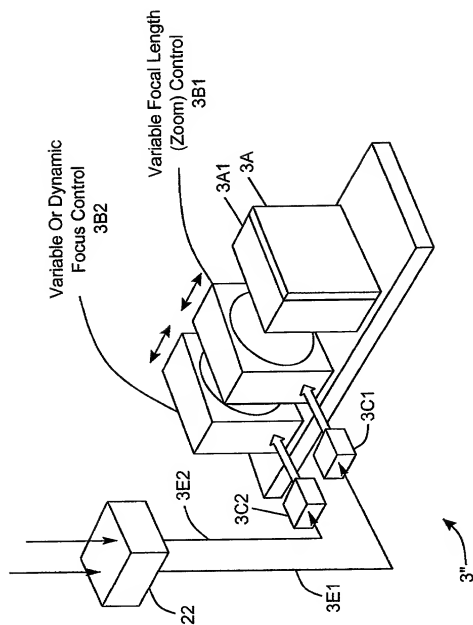


FIG. 3G3

- Variable Focal Length Imaging Lens
- Variable Focal Distance

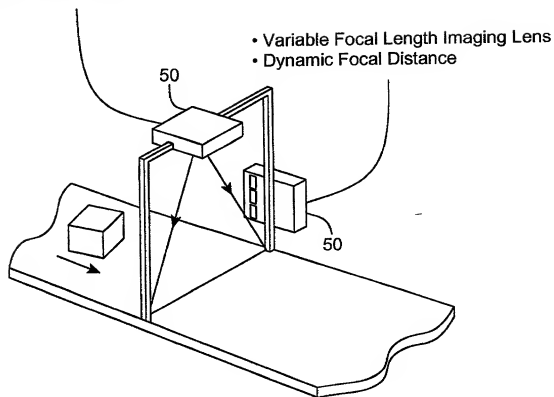


FIG. 3H

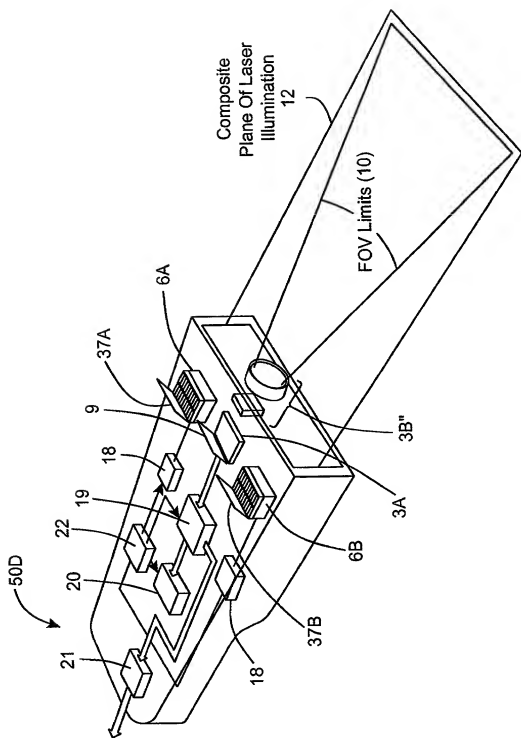


FIG. 3I

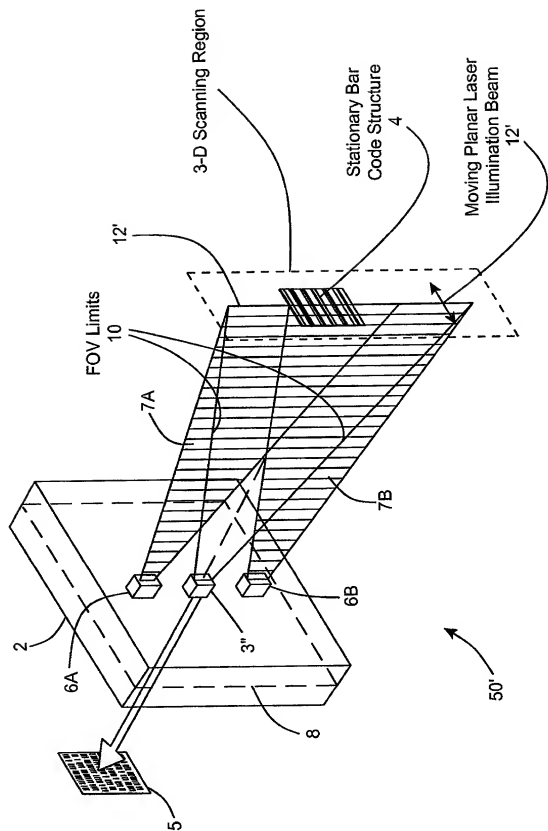


FIG. 3J1

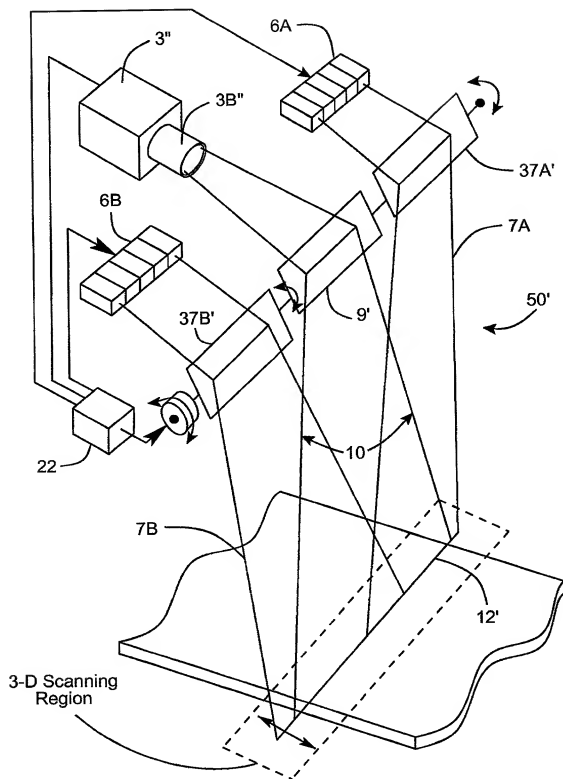


FIG. 3J2

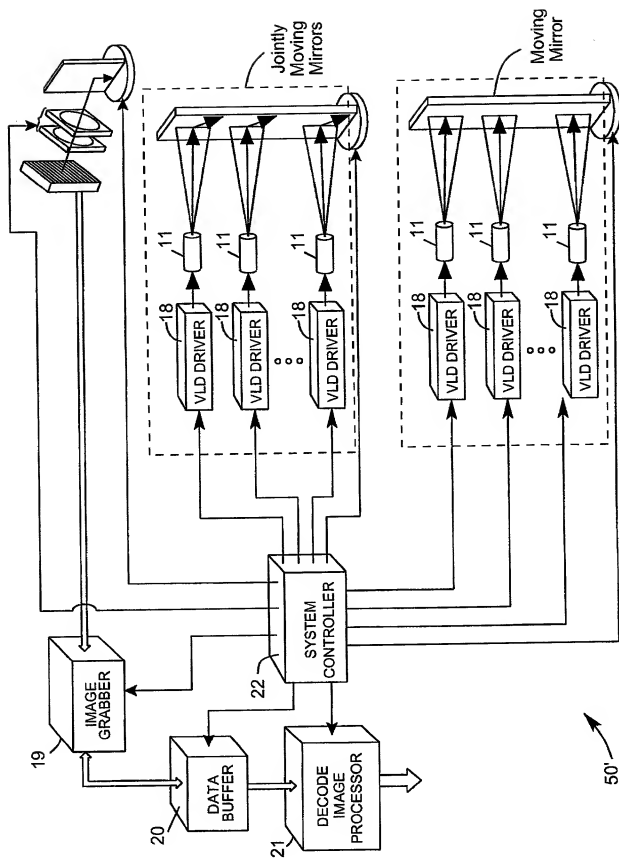


FIG. 3J3

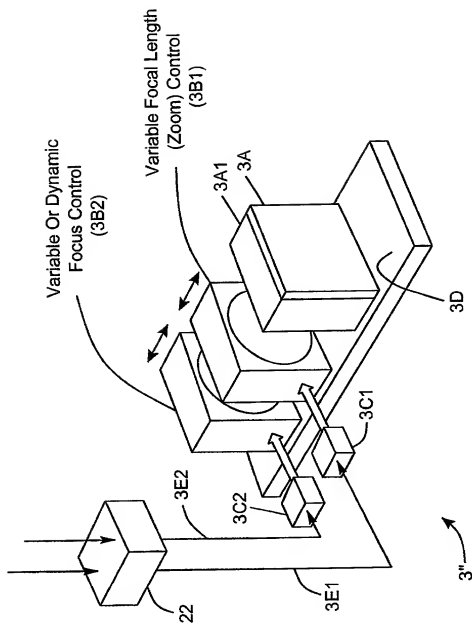
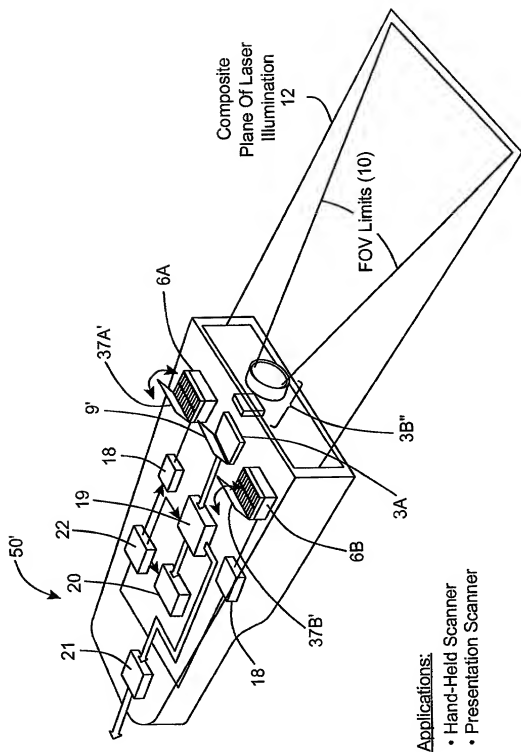


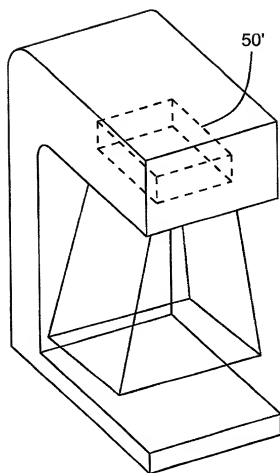
FIG. 3J4



Applications:

- Hand-Held Scanner
- Presentation Scanner

FIG. 3J5



2-D Hold-under Scanner

FIG. 3J6

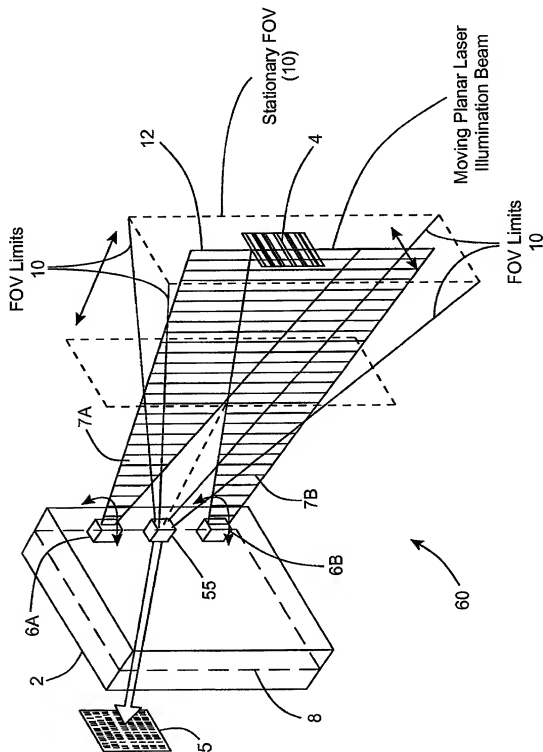


FIG. 4A

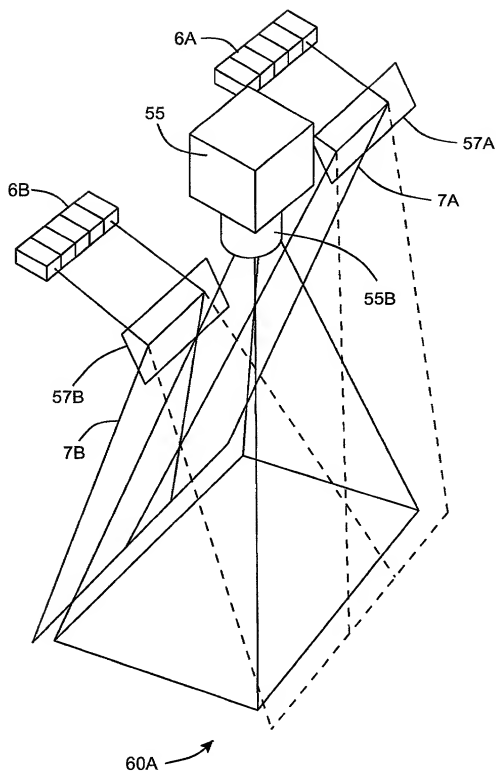


FIG. 4B1

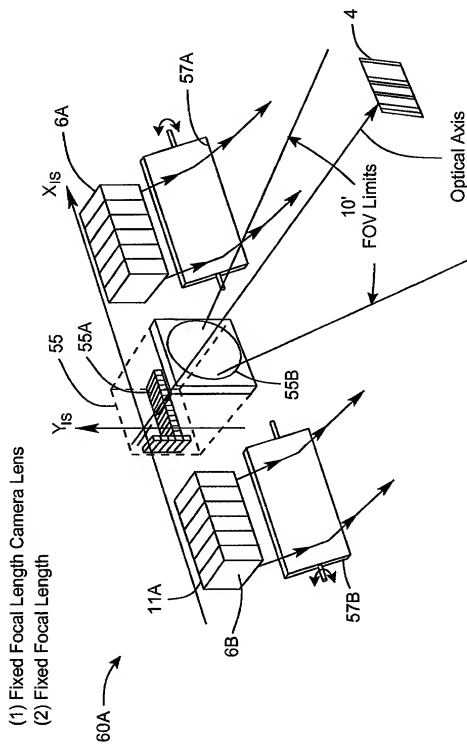


FIG. 4B2

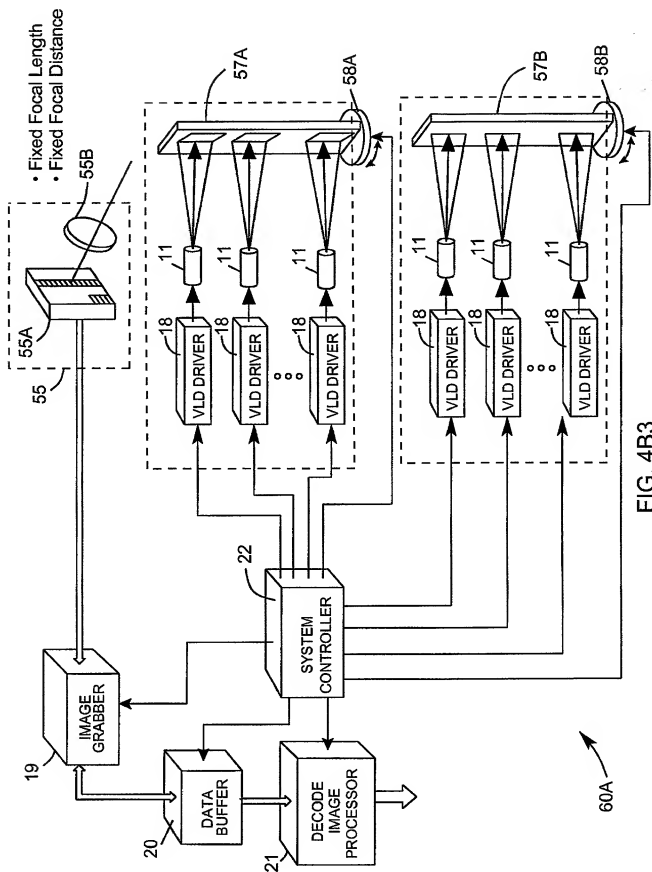


FIG. 4B3

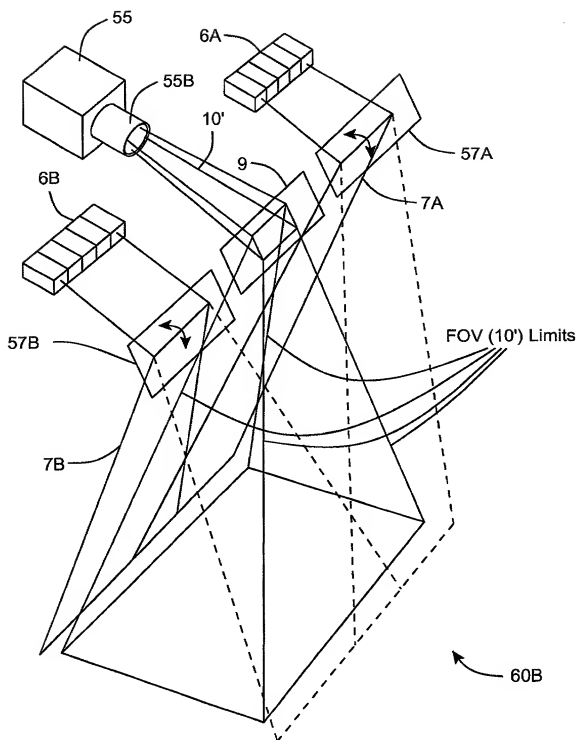


FIG. 4C1

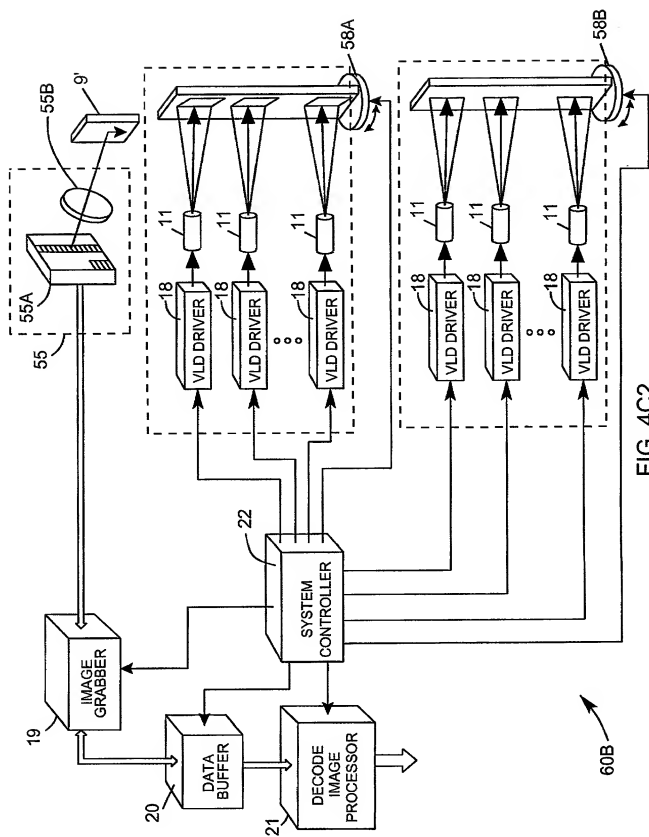
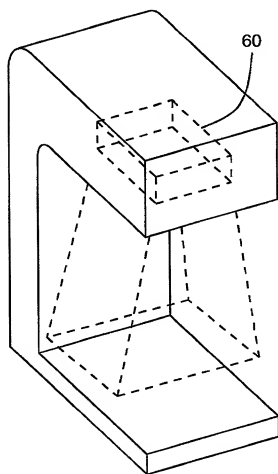


FIG. 4C2



2-D Hold-under Scanner

FIG. 4D

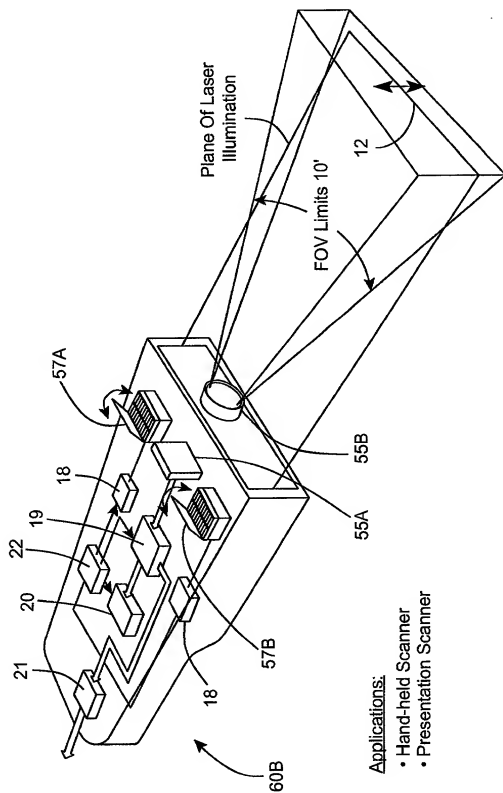


FIG. 4E

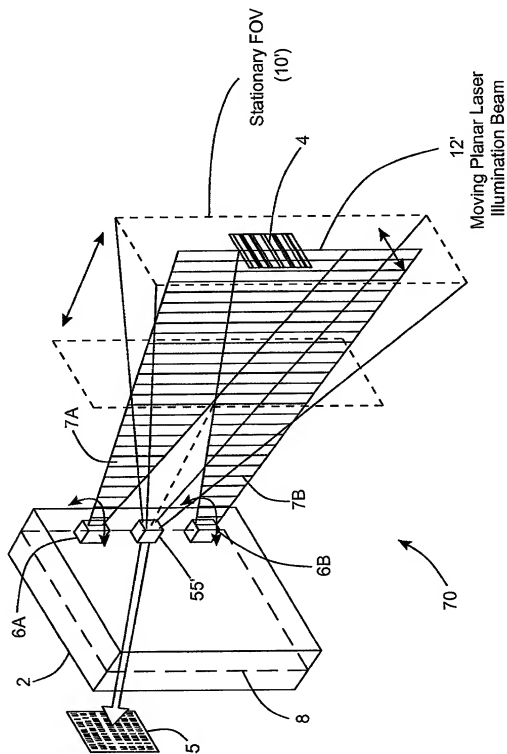


FIG. 5A

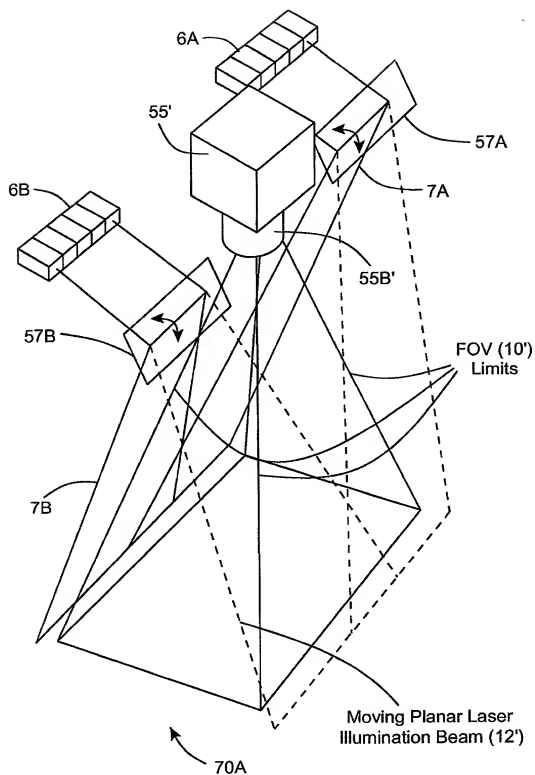


FIG. 5B1

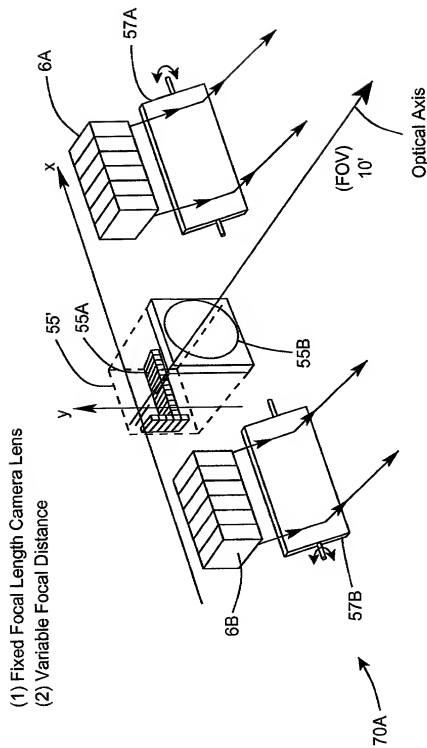


FIG. 5B2

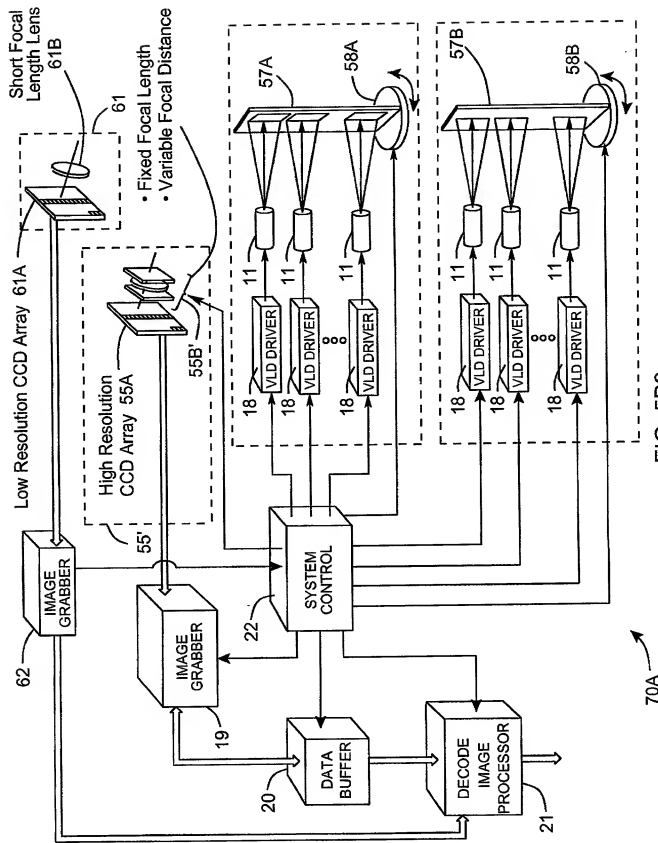


FIG. 5B3

70A

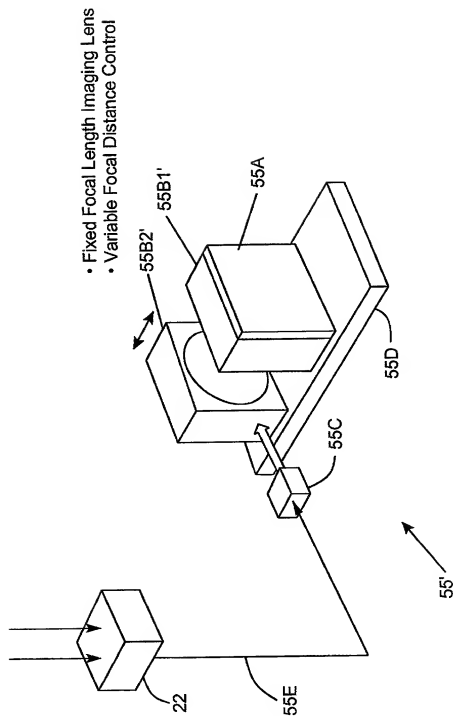


FIG. 5B4

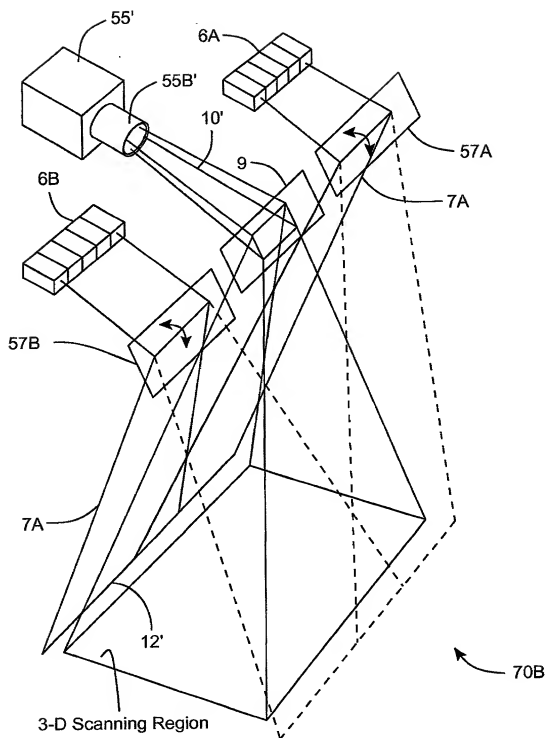


FIG. 5C1

- (1) Variable Focal Length Camera Lens
 (2) Fixed Focal Distance

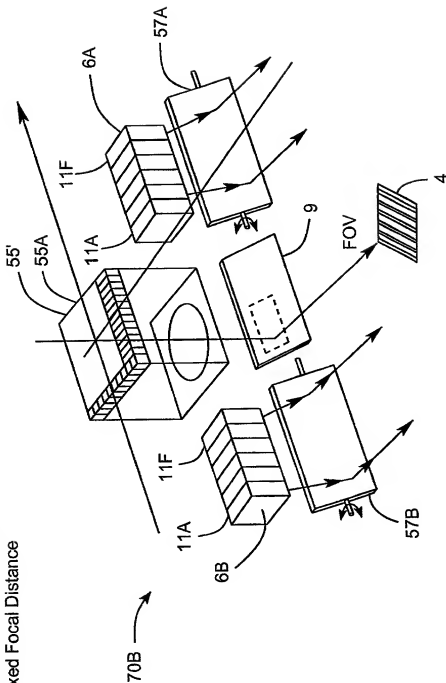


FIG. 5C2

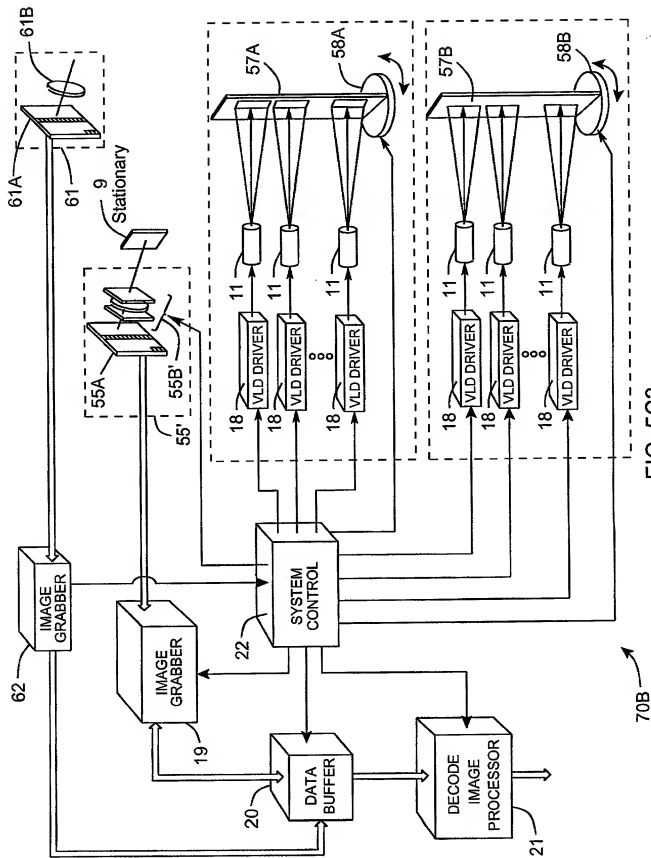


FIG. 5C3

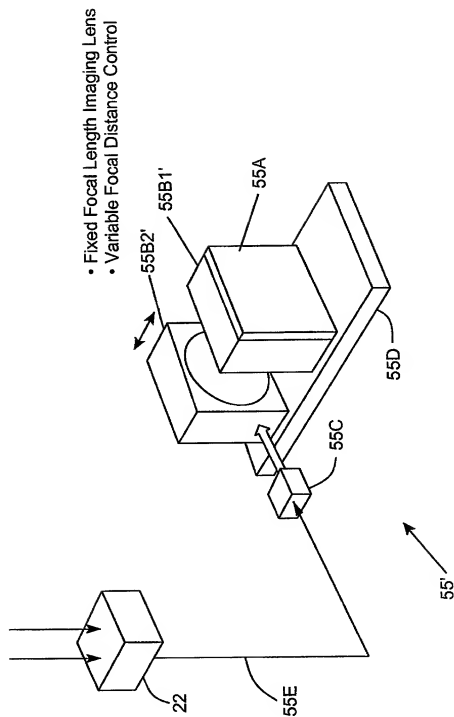


FIG. 5C4

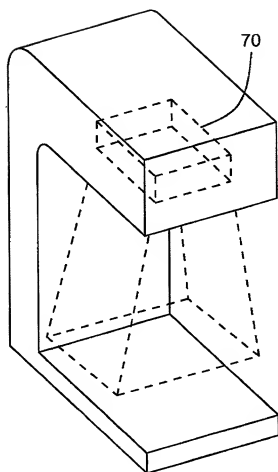


FIG. 5D

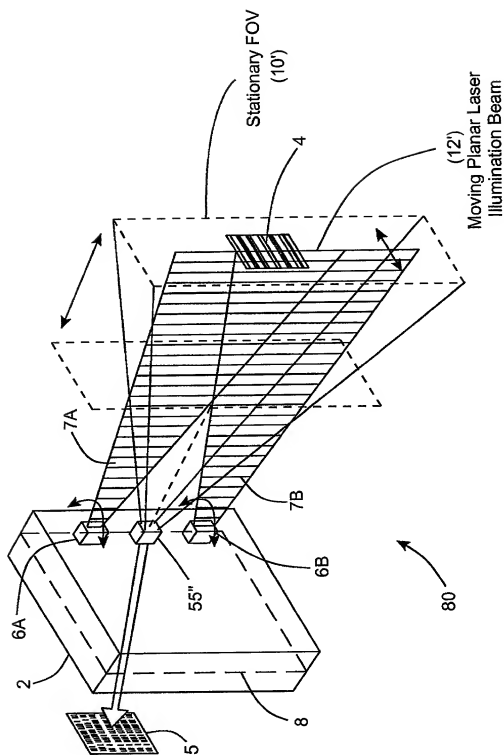


FIG. 6A

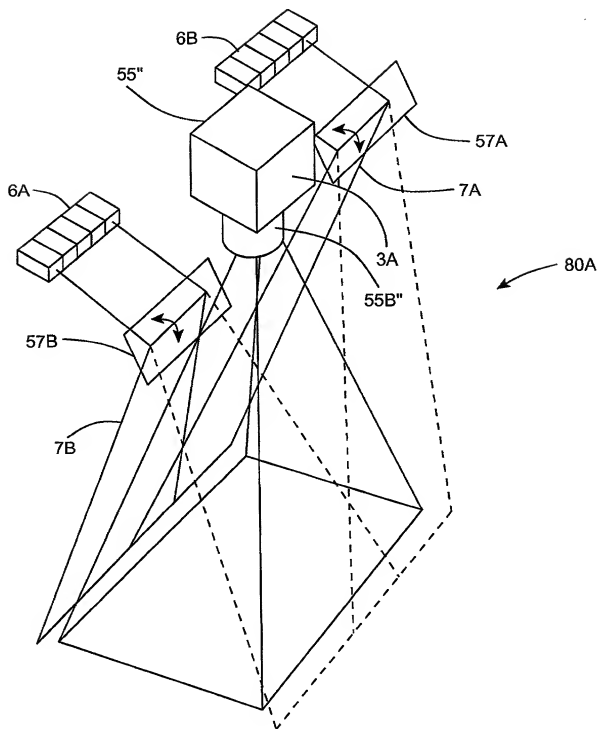


FIG. 6B1

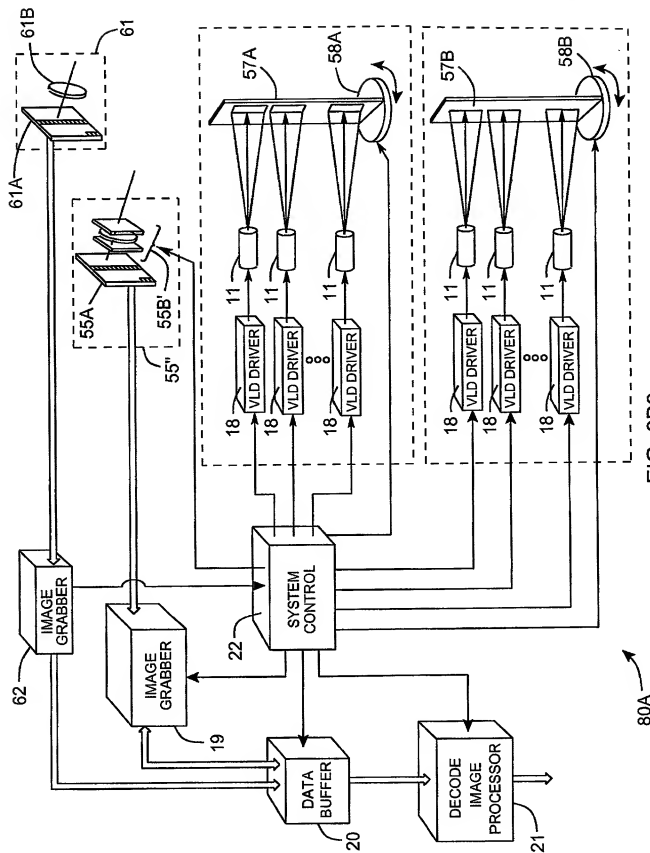


FIG. 6B3

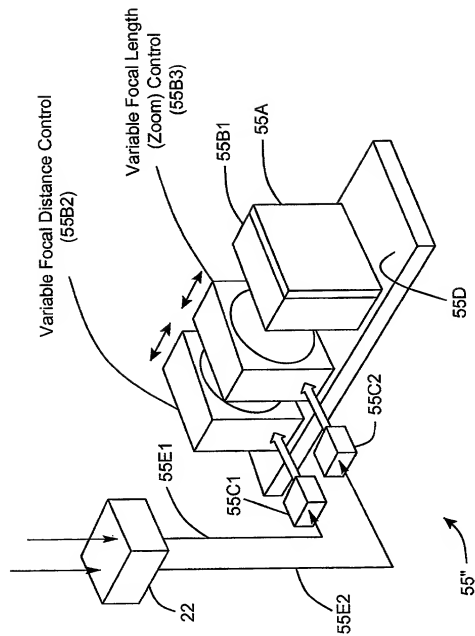


FIG. 6B4

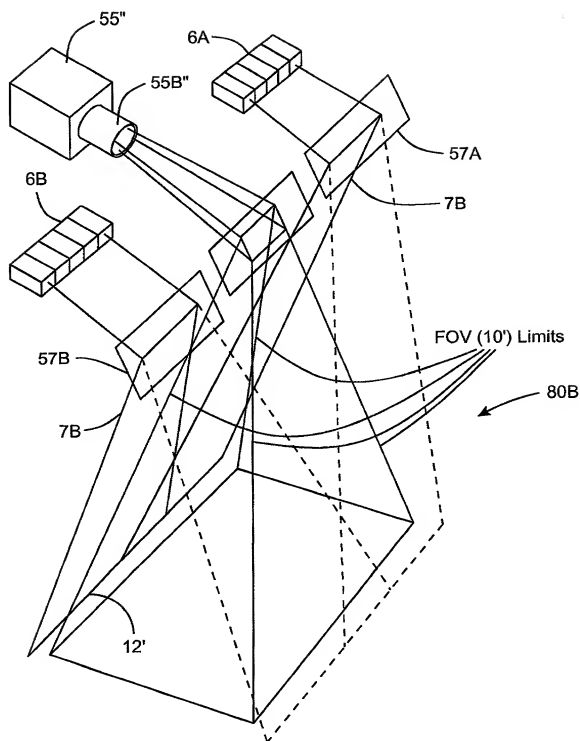


FIG. 6C1

- (1) Variable Focal Length Camera Lens
 (2) Variable Focal Distance

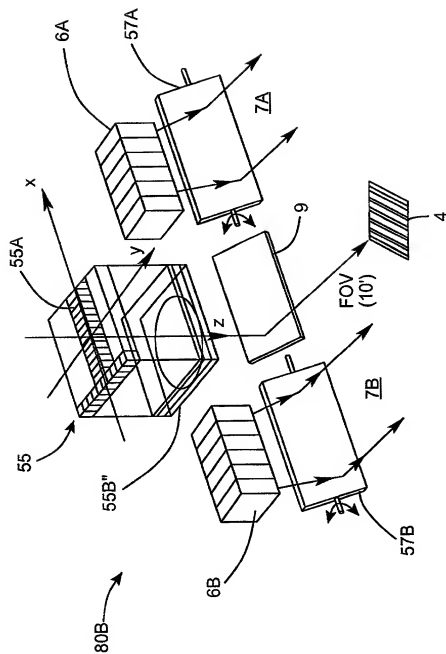


FIG. 6C2

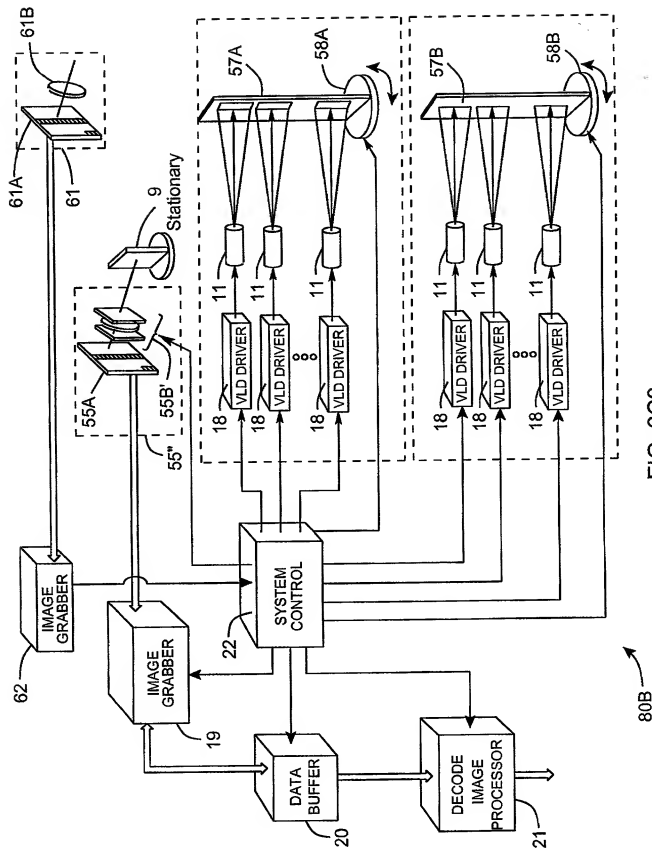


FIG. 6C3

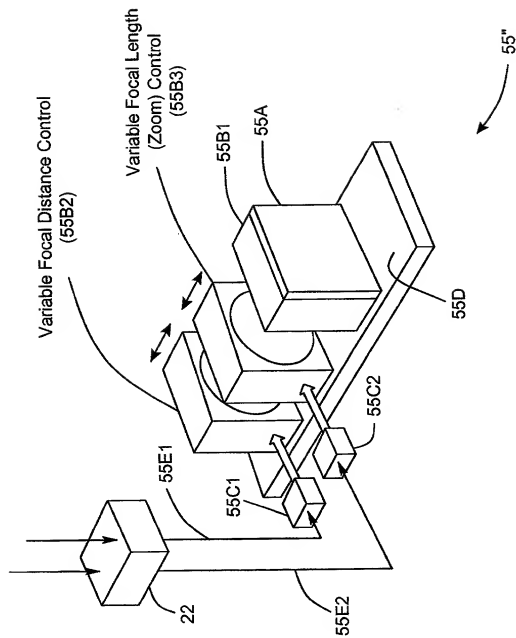


FIG. 6C4

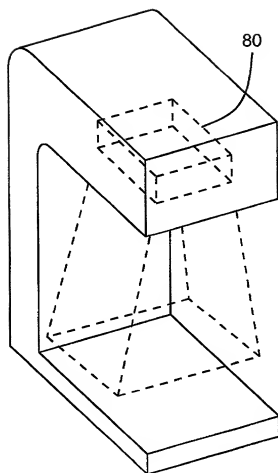


FIG. 6D

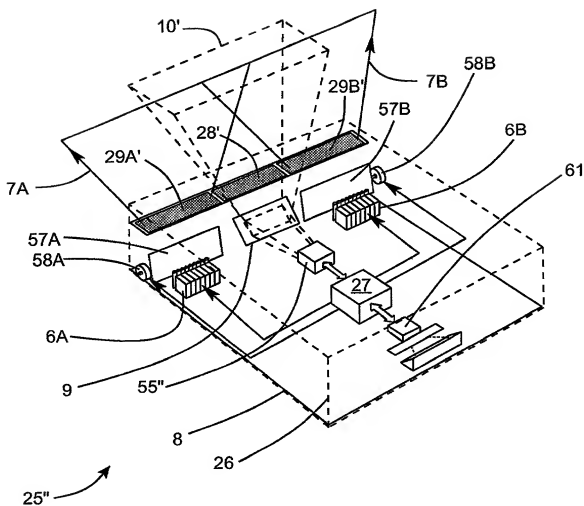


FIG. 6D1

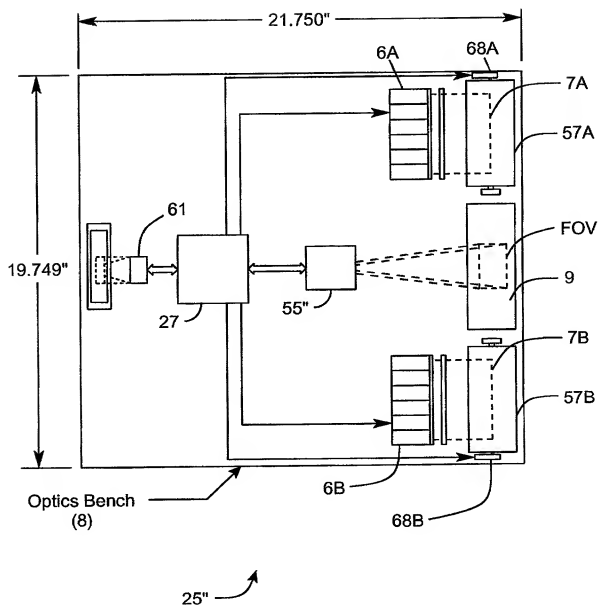


FIG. 6D2

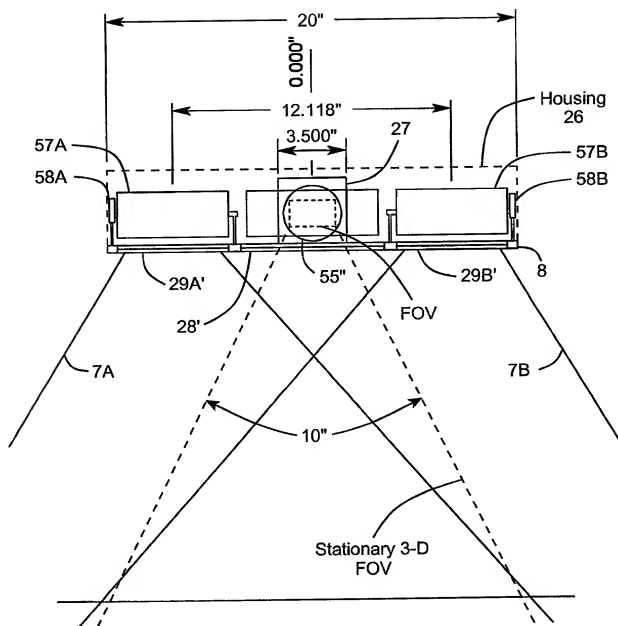


FIG. 6D3

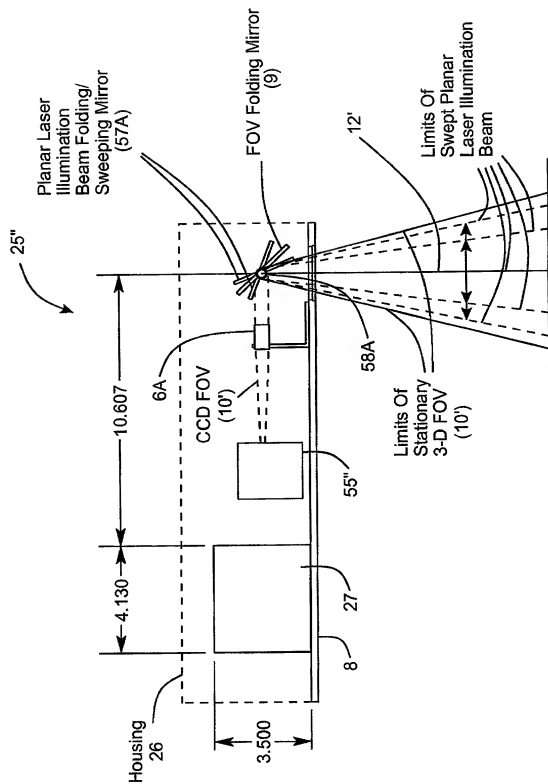


FIG. 6D4

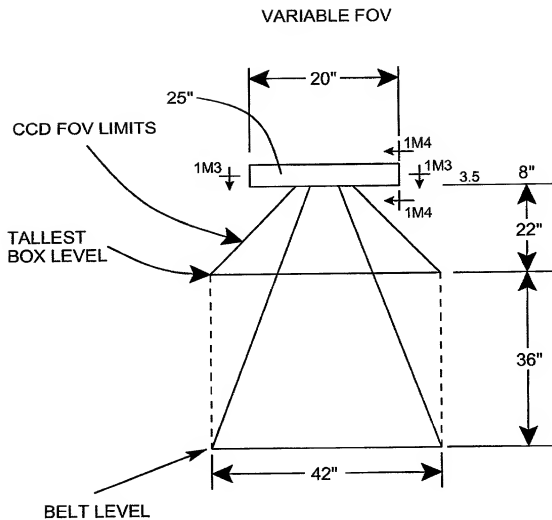


FIG. 6D5

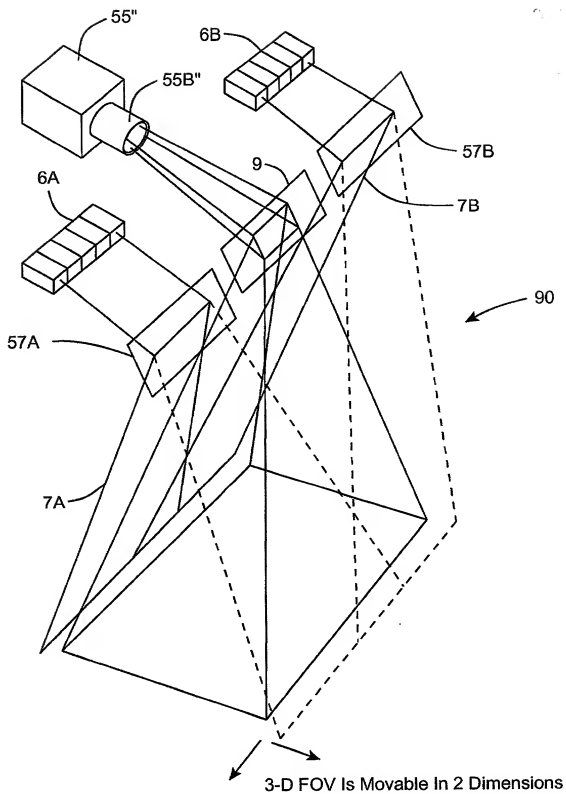


FIG. 6E1

(1) Variable Focal Length Camera Lens

(2) Variable Focal Distance

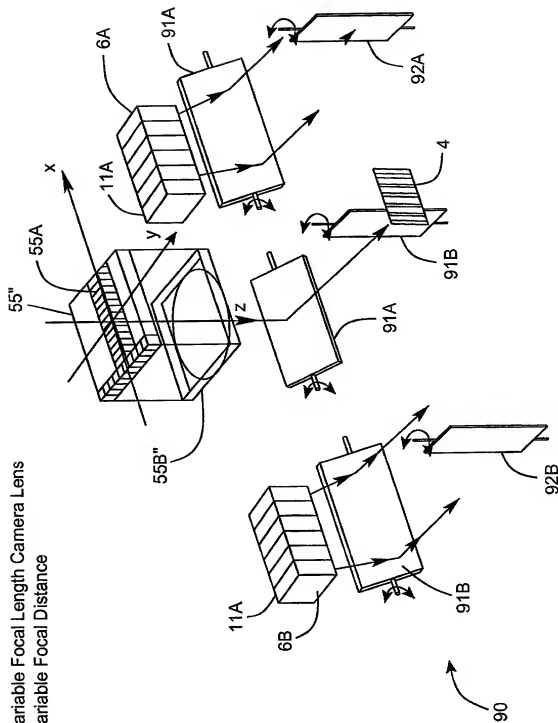


FIG. 6E2

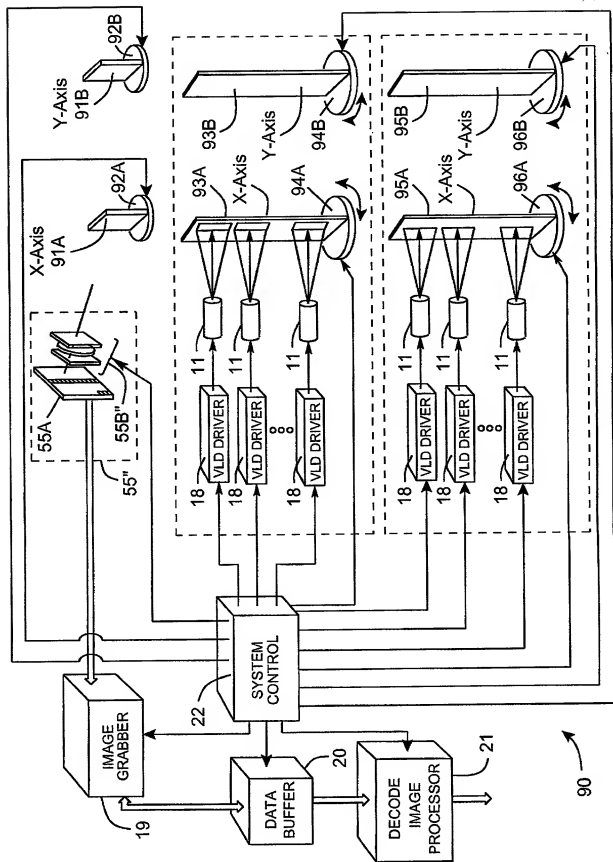


FIG. 6E3

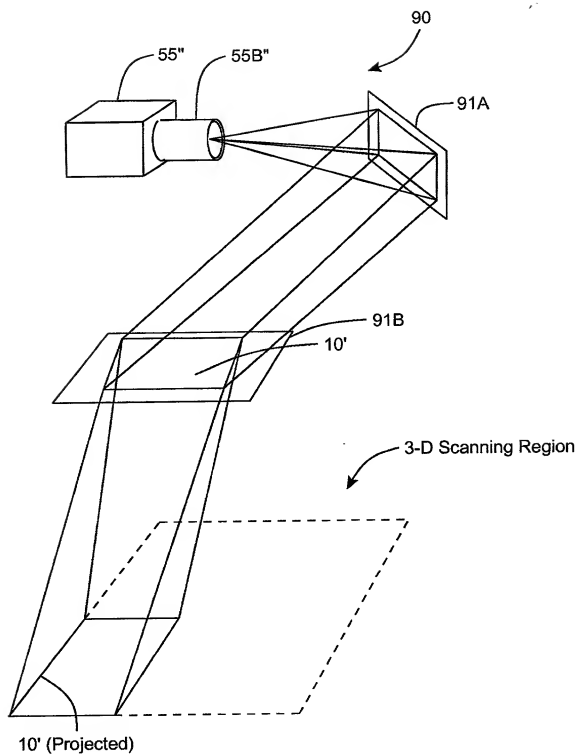


FIG. 6E4

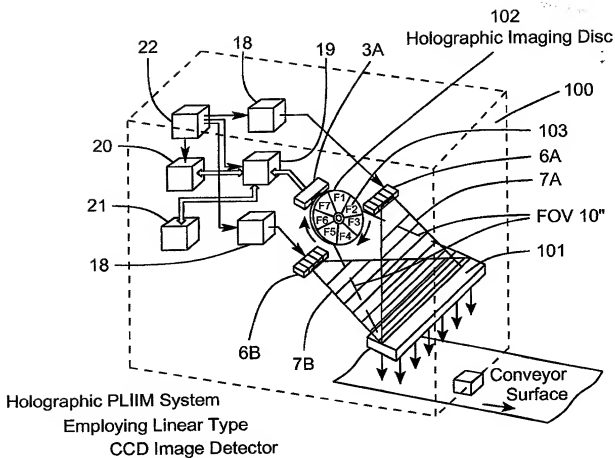


FIG. 7A

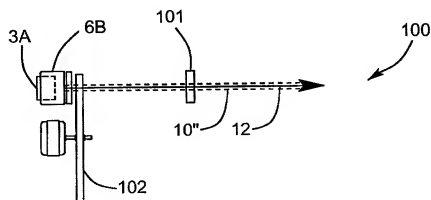


FIG. 7B

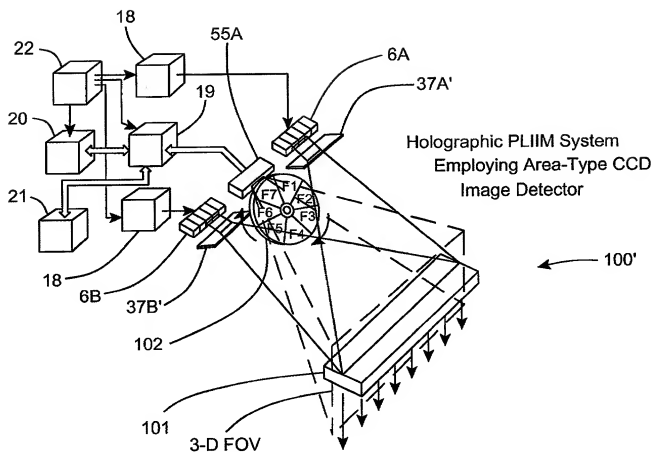


FIG. 8A

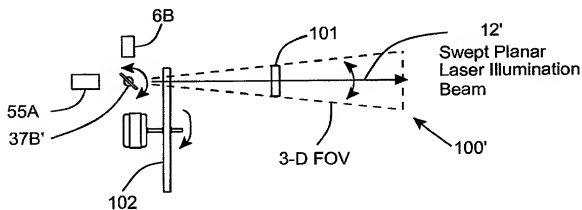


FIG. 8B

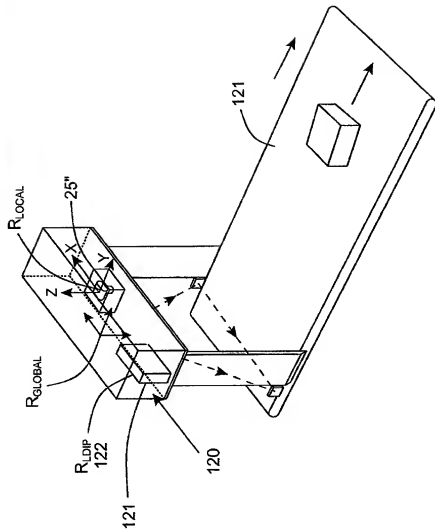
1-D CCD Scanner Embodiment

FIG. 9

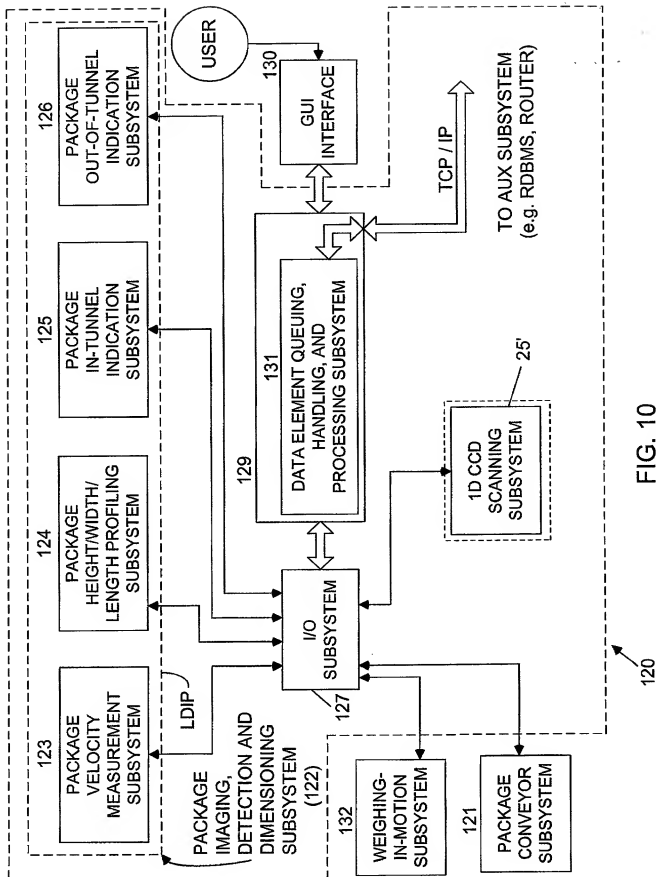


FIG. 10

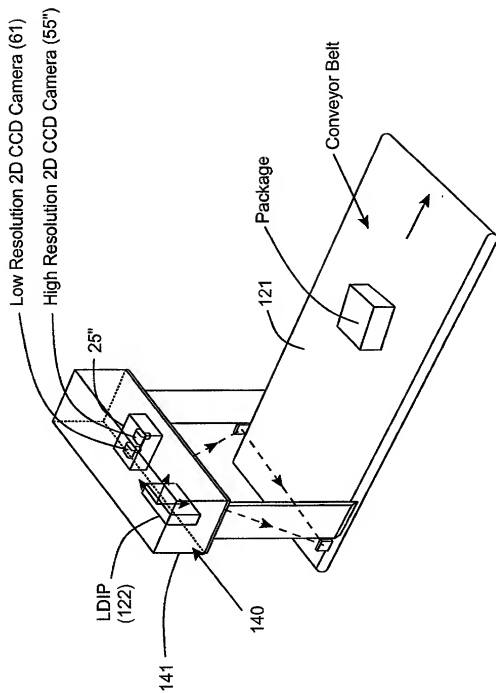
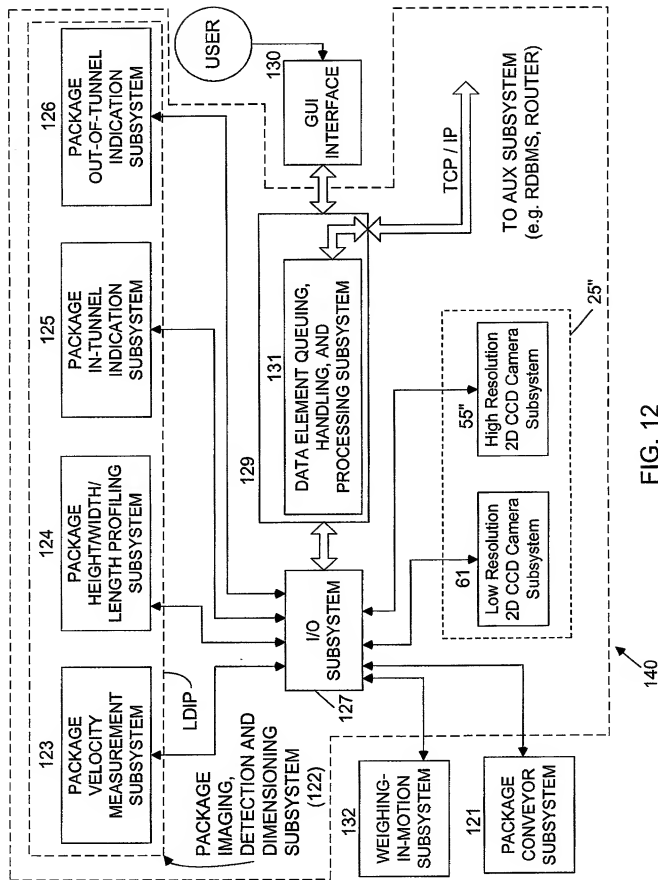


FIG. 11



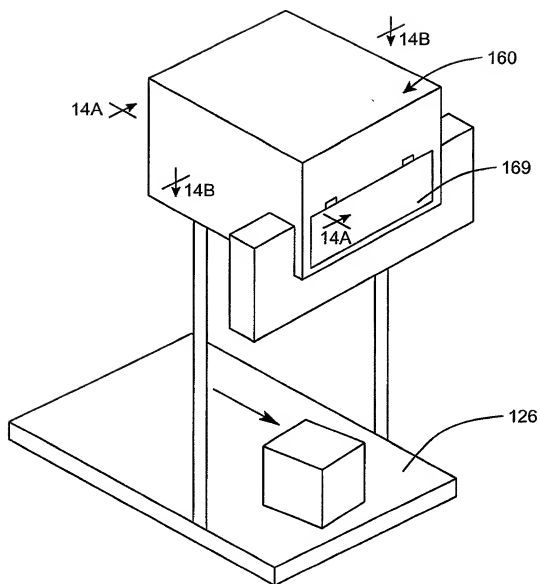


FIG. 13

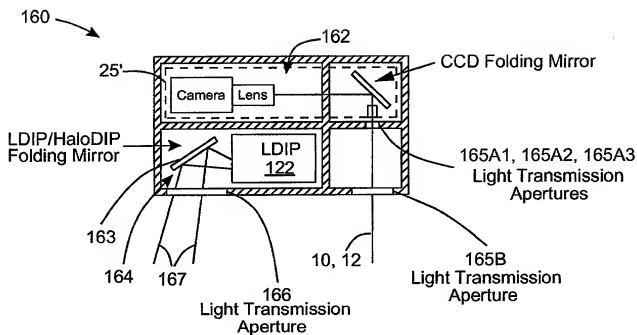


FIG. 14A

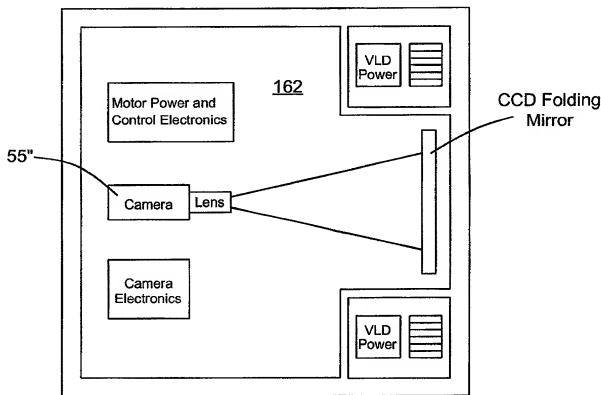


FIG. 14B

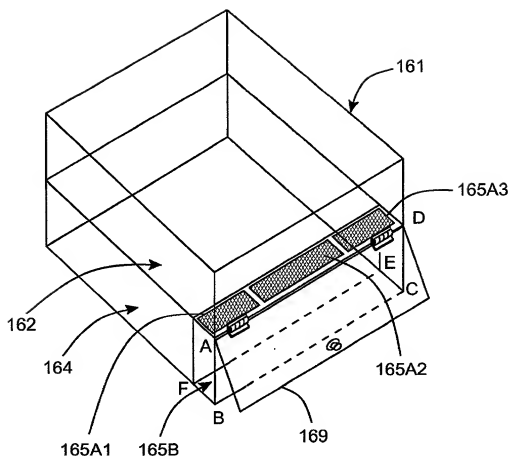


FIG. 15

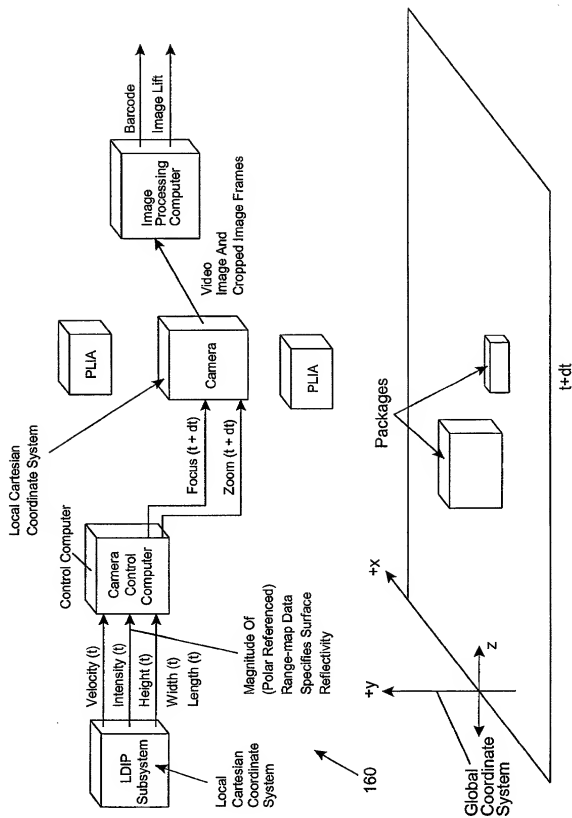


FIG. 16